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ABSTRACT

The study examined psychometric properties of the Comprehensive Early Evaluation and Programming System (CEEPS), a criterion-referenced instrument designed for handicapped children birth to 3 years old. The instrument was intended to provide specific information to develop program objectives across a range of developmental areas and to assess program effectiveness. Reliability, validity, and utility of the CEEPS were examined using 22 handicapped children between the ages of 24 and 40 months. Among reliability findings are that there is a high degree of score consistency across CEEPS domains and a high degree of score consistency or stability over time across CEEPS domains. Specific reliability results are reported for item analysis, and domains of fine motor, gross motor, self care, cognitive, social, and communication skills. Validity data suggested strong relationships between performance scores obtained on the Gesell and the CEEPS and between results of CEEPS performance scores and parent rating form scores and interviews. Utility findings suggested that the measure provides appropriate and useful information for designing educational programs for young handicapped children. Four pages of references are included; the Parent Rating Form, Gesell Protocal Forms, CEEPS Evaluation Form, and other materials are appended. (CL)

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Final Report
Grant No. 023AH30003

Psychometric Evaluation of the Comprehensive Early Evaluation and Programming System (CEEPS)[1]

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Earletta Bailey, Ph.D.

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Professionals working in the early childhood-special education field can no longer afford to overlook the importance of evaluation. First, future continuation and expansion of early intervention programs might depend, in part, on documented efficacy data. Second, evaluation is essential in order to develop and monitor effective educational programs for young handicapped children. As Evans (1982) cogently states . . . " educators live in the age of an evaluation imperative" (p. 1).

In the last 10 to 15 years there has been an increase in the number of intervention programs and services available to handicapped children from birth to three. To some extent, the proliferation of programs and services has been the result of federal legislation and fiscal support. For example, when congress established the Handicapped Children's Early Education Program in 1968, the number of demonstration projects for handicapped preschool children increased from 24 to 150 in less than a decade. Likewise, funds for these programs increased from one to 22 million dollars during this time period (Swan, 1980).

Although educational and related services were not necessarily guaranteed, federal legislation provided incentives to states for the provision of services for preschool handicapped children. For example, many states have taken advantage of federal funding to develop a variety of services (e.g., child find and parent training programs) for preschool handicapped children. Others have established policies to ensure that services are available for preschool handicapped children. For example, programs and services are mandated at preschool-age in many states and at birth in some states (Cohen, Semmes, & Guralnick, 1979).

During the 1960s and 1970s policies (e.g., legislation) and fiscal support established at the federal, state, and local levels was, in part, responsible for the increase in number of programs and services for handicapped children from birth to three. However, times are changing. The fiscal boom of the last two decades is waning and the political climate is changing. Changing state tax legislation (e.g., Proposition 13 in California), a decrease in public confidence concerning education (Hymes, 1982), and the current administration's "new federalism" policies, such as state educational block grants (Takanishi & Feshbach, 1982), are some of the factors contributing to a growing decline in fiscal and legislative support for educational programs.

A decrease in fiscal and legislative support has potential ramifications for future programs and services for handicapped children. Existing programs face drastic budget cuts and the possibility of needing alternative funding sources (e.g., private foundations). Obtaining resources for the development of new programs is even more questionable. As educational resources become scarce, intervention services for handicapped infants and preschool children will be subject to scrutiny by legislators, funding agencies, and tax payers (Evans, 1982). More than ever before documented evidence regarding the efficacy of early intervention may be necessary to justify the expenditures for the continuation and expansion of programs and services for handicapped children from birth to three.

Not only might evaluation be crucial for the existence of future early intervention programs, but evaluation is essential for appropriate and effective intervention (Bricker & Littman, 1982). The purpose of most early intervention programs is to target areas where children need remediation (e.g., communication training) and then facilitate the acquisition of necessary skills and functional behaviors. To determine if intervention efforts are appropriate and effective, there should be a link between intervention practices and decision making based on objective information that will aid decision making. For example, if children are

not making progress towards target objectives, then modifications or changes can be made in intervention plans (e.g., IEP goals, training objectives). Through systematic and on-going evaluation timely programmatic decisions can be made enabling more appropriate and effective intervention practices.

Objective information is also important in order to judge the overall value of an intervention program. Systematic evaluation provides the information to determine if children are making acceptable progress that might be, in part, attributable to specific interventions.

Evaluation is essential in order to provide appropriate and effective programs for young handicapped children and to demonstrate the value of early intervention. The need to monitor intervention practices and demonstrate the efficacy of early intervention has created a need for feasible and valid evaluation methodology. However, methodological problems (e.g., lack of appropriate controls, limited applicability of statistical procedures) make evaluation efforts with young handicapped populations difficult at best. In addition to methodological problems, evaluation efforts in early intervention programs are rarely guided by any formal evaluation plans or approaches (Sheehan & Keogh, 1982). A major problem confronting those who plan and evaluate early intervention programs is the lack of available approaches or systems to guide intervention and evaluation activities (DuBose, Langley, & Stagg, 1977; Switzky, Rotatori, Miller, & Freagon, 1979; Bricker, Sheehan, & Littman, 1981). A major question that should be addressed by professionals in the early intervention field is how to provide appropriate intervention programs and demonstrate the efficacy of intervention efforts.

Linking Intervention and Evaluation

The need to demonstrate the efficacy of early intervention for young handicapped children has created a need for systematic methods or strategies to plan and evaluate early intervention practices. Planning appropriate and effective intervention programs requires that evaluation be an integral part of intervention. Evaluation methods and strategies that have been recommended by educators who work with young handicapped children often emphasize the interdependent relationship between intervention and evaluation. For example, Bricker and Littman (1982) claiming that "Evaluation is essential for effective intervention" (p. 23), describe a detailed system that links evaluation activities with intervention practices. Their evaluation system includes three separate but interrelated levels: 1) initial assessment and programming, 2) on-going monitoring, and 3) annual program evaluation. The evaluation process is implemented at the beginning of the school year or when children enter the program and continue until the end of the year or when children leave the program. Initial assessment provides information to formulate Individual Education Plans (IEP) and instructional programs and strategies. On-going monitoring (i.e., daily/weekly instructional data and quarterly assessment) enables timely programmatic modifications or changes for individual children based on objective information. Annual evaluation provides information about the overall effectiveness of instructional plans and strategies for individual children, sub-groups of children (e.g., children with certain handicapping conditions or ages), and/or the total group of children enrolled in the program.

The potential outcome of the evaluation system suggested by Bricker and Littman (1982) is the effective integration of evaluation and intervention. Similarly, others recommend systematic approaches to evaluation and intervention (DuBose, Langley, & Stagg, 1977; Bagnato, 1981; Bagnato & Neisworth, 1981; Bricker, Seibert, & Scott, 1978) which require assessment as one necessary ingredient for

the successful integration of evaluation and intervention.

Perhaps assessment is the process that "links" evaluation and intervention and an assessment instrument(s) or test(s) is the mechanism that enables the linkage. To be useful for both intervention and evaluation purposes when dealing with young handicapped children, assessment should target exact functioning levels; suggest intervention goals and training objectives; monitor child progress; and provide program evaluation information. Not only should assessment instruments be designed to assess skills and capabilities across several curricular or developmental areas (e.g., motor, cognition, language, and social), but the content of the instrument(s) should closely match the content and objectives of the intervention program and contain items that represent small sequential steps in order to reflect small gains or treatment effects (Sheehan, 1982). However, the majority of existing instruments do not adequately assess young handicapped children and information from existing instruments has limited usefulness for educational programming and evaluation purposes. One plaguing problem for those who plan and evaluate programs for young handicapped children is the inadequacy of available measurement instruments (White & Haring, 1978; Bricker & Sheehan, 1981; Hamilton & Swan, 1981; Sheehan & Keogh, 1981; Bricker & Littman, 1982; Simeonsson, Huntington, & Short, 1982).

Assessment of Handicapped Infants and Preschool Children: Limitations of Existing Instruments

One reason it is difficult to assess handicapped children with existing instruments is the administration procedures required by these instruments. Tests, such as the Bayley Scales of Infant Development and Cattell Infant Intelligence Scale, are typically given in isolated settings by a trained examiner, testing one item at a time. Testing in unfamiliar settings by strangers can repress children's responses (DuBose, 1979; Yarrow, 1979) and testing one item at a time might provide a limited view of children's abilities and capabilities (DuBose, Langley, & Stagg, 1977). In addition, skills exhibited during a structured assessment (e.g., use of standardized procedures) will not necessarily appear in children's spontaneous behavior (Simeonsson & Wiegerink, 1975; Anastasiow, 1979; Fischer, 1980). Assessing children as they routinely behave in various environments might increase the likelihood of differentiating functional and nonfunctional skills. More information might be obtained by an interventionist assessing a child in a natural setting (e.g., home, classroom) while participating in routine activities. For example, a child might produce functional fine motor and language skills during snack time that might not occur during a direct test (i.e., structured) situation.

Besides an appropriate setting, some handicapped children often need special materials (Filler, 1973; Bricker & Littman, 1982) or adaptations in test procedures (Simeonsson & Wiegerink, 1975; White & Haring, 1978; DuBose, 1981) to correctly perform certain tasks or behaviors. However many tests, such as the Bayley Scales of Infant Development and Stanford-Binet Intelligence Scale, require specific materials and do not allow procedural modifications. A deaf-blind child might need practice and physical assistance to understand a test direction. A motorically impaired child might need a prosthetic device to complete a task, or a longer time to respond than many tests allow. Without special materials or procedural modifications, performance levels of many handicapped children might appear to be lower than they actually are. Inaccurate information about performance levels might result in the selection of inappropriate intervention goals and objectives leading to programs geared below the child's actual competencies and capabilities.

Not only are flexible administration procedures necessary to adequtely assess

handicapped preschool children, but intervention programs need assessment instruments that are comprehensive. Most intervention programs deal with many areas of development in their curricula (e.g., gross and fine motor, cognitive, social interaction, self-care, and communication). Yet, some tests only assess limited areas of development. For example, the Ordinal Scales of Psychological Development (Uzgiris & Hunt, 1975) only assess sensorimotor skills. Although this test might be administratively appropriate for the handicapped, it would not be useful alone for many programs because of its limited scope (i.e., focused only on the sensorimotor domain). Some instruments such as the Uniform Performance Assessment System (UPAS) (White, Edgar, Haring, Affleck, & Hayden, 1980) and the Student Progress Record (SPR) (Oregon State Division of Mental Health, 1977) are criterion referenced tests that do assess a wide range of development, but they contain a limited number of items for children under three. Assessment instruments that assess many domains of behavior and contain items that cover the birth-to-three age range are needed.

Standardized or norm referenced tests summarize performance into single total scores, giving limited information for educational planning. For example, the overall score from the Gesell is converted into a total Maturity Age (MA) score. This single MA score does not reflect how a child performed, or did not perform certain behaviors. In addition, many tests do not reflect actual performance because the converted score tables do not include scores that fall below certain levels (Simeonsson & Wiegerink, 1975; White & Haring, 1978); for example, a developmental quotient (DQ) can not be calculated for a score below 50 on the Bayley. Total or derived scores might suggest delayed areas of functioning (e.g., motor and cognition) but these scores do not give enough information to determine program objectives or training strategies (Darby, 1979; DuBose, 1981; Ramey, Campbell, & Wasik, 1982).

Scores derived from criterion referenced tests can also be limited. Many criterion referenced tests contain items and corresponding age levels from several standardized tests. Not only do age level scores provide limited information for educational planning, but because these scores were derived from different standardized samples they may provide an unreliable estimate of performance or developmental level (Johnson, 1982).

Comprehensive assessment instruments that are sensitive to small changes in development and relevant to intervention objectives are needed for program evaluation. As mentioned before the UPAS and SPR are comprehensive, yet lack items appropriate for children under three. It is difficult to measure small developmental gains of handicapped preschool children with instruments that do not contain items that measure small developmental increments. Standardized or norm referenced tests (e.g., Bayley) are designed to assess global abilities and will not adequately reflect small changes in child behavior (MacTurk & Neisworth, 1978; Sheehan, 1980; Garwood, 1982). In addition, the purpose of standardized tests is to compare a single child's performance against the performance of the norm sample. Comparing handicapped children with nonhandicapped children might give some information about performance in relation to the norm performance; however, such a comparison does not give either information about individual achievements nor the impact of specific intervention strategies that were used in the program. To measure program effectiveness, assessment instruments must be relevant to the objectives of the program--they must measure what programs try to accomplish (Bricker, Seibert, & Scott, 1978; Kopp, 1979; Ramey, Campbell, & Wasik, 1982).

In summary, the majority of existing assessment instruments do not adequately assess young handicapped children, and the information from these instruments has

limited usefulness for educational programming and evaluation purposes. The usefulness of assessment instruments for planning educational programs (e.g., training objectives) and evaluating program effectiveness depends on the objectives of the intervention program and the characteristics of the children in the program (Bricker & Littman, 1982). However, regardless of program objectives and population characteristics, assessment should target exact functioning levels; suggest intervention goals and training objectives; monitor child progress; and provide program evaluation information. To be appropriate for handicapped infants and preschool children and to provide useful programming and evaluation information, an assessment instrument should meet certain criteria (Bricker, Seibert, & Scott, 1978; DuBose, 1981). An assessment instrument for monitoring child progress and program evaluation should:

1. Be used by those people who deal with the child on a regular basis (i.e., teachers, aides or parents) in a natural setting (i.e., home, classroom).

2. Reflect curricular content of the intervention program: objectives that might be used as training targets should be included in the instrument.

3. Provide a logical developmental sequence of items or objectives that can be used as training guidelines.

4. Accommodate a wide range of handicapping conditions.

5. Specify performance criteria that indicate if a child has a particular skill and if the skill is a functional part of the child's daily repertoire.

6. Be a reliable and valid measure.

In their review of prominent assessment instruments developed for infants and preschool children, Bagnato and Neisworth (1981) found few instruments that meet the final criterion suggested for a useful instrument. Likewise, others report the majority of available instruments lack reliability, validity, and standardization data (Walls, Werner, Bacon, & Zane, 1977; Cross & Johnston, 1977; Johnson & Kopp, undated). The limitations of existing instruments (including the lack of psychometric data) and pressing demands for accountability, has created an urgent need for assessment instruments suitable for young handicapped children and useful for intervention and evaluation purposes.

One instrument that holds some potential for meeting the criteria suggested by Bricker, Seibert, and Scott (1978) and DuBose (1981) is the Comprehensive Early Evaluation and Programming System (CEEPS). The CEEPS is an experimental criterion-referenced instrument developed for handicapped children from birth to 36 months. This instrument was designed to: 1) provide specific information that can be used to develop program objectives across a range of developmental areas; and 2) be used as a tool to assess program effectiveness.

The Comprehensive Early Evaluation and Programming System (CEEPS)[1]

The CEEPS was designed to be used by direct service personnel (e.g., teachers, therapists) by observing children in daily-living environments (e.g., home, classroom). The preferred method of assessment is observation of the child in her/his environment. However, if observation does not provide adequate information

[1]The CEEPS is a revision of the Adaptive Performance Instrument (API) which was developed by the Consortium on Adaptive Performance Evaluation (CAPE, 1978).

or a child does not display certain behaviors, direct testing or report (e.g., parent report) are allowed.

The CEEPS is educationally relevant. The items in the test reflect curricular content appropriate for most early intervention programs. There are six curricular areas called Domains included in the CEEPS: Gross Motor, Fine Motor, Self-Care, Cognitive, Social, and Communication. Each of the six domains are composed of a series of Strands which represent groups of related behaviors within a domain. For example, the cognitive domain contains seven strands: Sensory Stimuli, Object Permanence, Imitation, Causality, Problem Solving, Object Differentiation, and Pre-Academic Skills. Each strand is divided into a series of items called Long Range Goals (LRG) and Training Objectives (TO). The TOs are arranged in steps beginning with the simplest response and moving to a specific LRG (i.e., the most difficult response). Failed TOs can be selected as short-term IEP objectives and failed LRGs can be selected as long-term IEP goals.

Long range goals and training objectives are arranged in a sequence that reflect either a developmental and/or a hierarchical training progression. Developmental research and theory, as well as component task analysis, directed the selection and sequencing of assessment items in each domain.

The CEEPS Administration Manual contains a detailed description of the assessment procedure (i.e., observation and direct test procedures); necessary equipment and materials; and the criteria for successful completion of each LRG and TO. Each item (i.e., LRG and TO) is scored either pass (+) or fail (-) in the "score boxes" on the CEEPS data recording forms. Codes that describe specific types of responses (e.g., direction adaptation) are recorded on the "notes" column next to the score. The number of correct responses is tallied for each domain and the raw score can be converted to a percentage correct score (i.e., total percentage domain scores).

The CEEPS was designed to accommodate a range of handicapping conditions. Adaptations are permitted for children who have sensory or motoric handicaps that might restrict their ability to perform a target behavior. Two types of adaptations can be made: direction adaptations and criterion adaptations. Direction adaptations are changes in the materials, position of the child, or presentation of the items. For example, a physically handicapped child might need a spoon with a built-up handle to facilitate eating or a hearing impaired child might require sign language to understand a specific direction. Criterion adaptations are changes in the acceptable response format; for example, changes in the rate of performance or the type of performance. A visually impaired child might not be able to focus on an object manipulated by an adult but would pass the item if the criteria were changed to accept postural orientation to the adult. A physically handicapped child who cannot produce speech sounds could respond correctly by pointing to symbols on a communication board.

Performance standards were designed to indicate if a child has a particular skill or concept and if the skill/concept is functional for daily living. The CEEPS has different scoring levels that indicate if a skill/concept is consistently exhibited across people and settings; situation specific (e.g., only exhibits skill/concept with certain people); or inconsistently produces (i.e., exhibits skill/concept sometimes and not other times). The CEEPS discriminates levels of skill performance between those behaviors that can be performed but are not used functionally by the child and those behaviors that are performed in a functional manner. (Appendix A contains selected information on the CEEPS.)

Purpose of the Study

The final criterion suggested for a useful instrument is that it be a reliable and valid measure. The purpose of this study is to provide information on selected psychometric properties of the Comprehensive Early Evaluation and Programming System (CEEPS). The primary focus of this study will permit evaluation of its reliability, validity, and utility. Following are the specific research questions addressed in this study.

Research Questions

Reliability

1. What is the agreement when two observers simultaneously observe the same children and rate (pass-fail scores) children's performance on CEEPS items?

2. What is the agreement between scores if the CEEPS is administered twice to the same children with a brief time period between administrations?

3. Are CEEPS items logically organized into domains which represent different constructs or groups of behaviors?

4. What is the agreement between scores obtained by observation and scores obtained by direct test when the CEEPS is administered to the same children using both methods of assessment (observation and direct test)?

Validity

1. What is the relationship between CEEPS scores and standardized test scores and clinical judgement of children's abilities?

Utility

1. To what extent is the CEEPS a feasible and useful assessment instrument?

METHOD

The CEEPS is an experimental assessment instrument for which data are needed to examine its reliability, validity, and usefulness. The purpose of this study was to provide information on selected psychometric parameters of the CEEPS that will permit evaluation of its reliability and validity. In addition, this study examined the instruments' usefulness for developing educational programs for handicapped preschool children.

Subjects and Setting

The children enrolled in the Early Intervention Program (EIP) at the Center on Human Development, University of Oregon participated in this study. There were 22 handicapped children between the ages of 24 and 40 months (mean, 30.7; sd, 4.4) and 10 nonhandicapped children between the ages of 20 and 39 months (mean, 29.7; sd, 7.5). The handicapped children were diagnosed as having a variety of disabilities including: general developmental delays, Down syndrome, and motoric disorders. Impairments ranged from at-risk for developmental problems, mildly delayed to

moderately and severely impaired.

The children attended class at the center four days a week for two-and-one-half hours a day. Observation data were collected by observers in the classroom and the CEEPS was administered by the intervention staff in the classroom. The Gesell was administered by a trained examiner in the testing room at the center. Parents completed a rating form of children's skills and abilities prior to the Gesell administration (i.e., in the testing room) and parent interviews were conducted in a convenient location at the center (e.g., office, family living area).

Measures

The CEEPS Administration Manual and data recording forms were used when the instrument was administered to the children by the intervention staff and when observers collected data for reliability purposes. Most of the test materials were toys, objects, and containers found in the classroom. (Selected information from the administration manual can be found in Appendix A.)

The Gesell Developmental Scales Test Kit, Administration Manual and required test materials were used when the Gesell was administered. Test data were recorded on Gesell Protocal Forms (see Appendix B).

A parent rating form was used to collect data concerning parent judgements about their children's skill levels and abilities. This rating form contains CEEPS Long Range Goal (LRG) items rewritten in language appropriate for parents (i.e., removing technical jargon). Parents respond to each item by checking whether their child exhibits a certain behavior: All the Time, Used To, Sometimes, or Not Yet (see Appendix C).

The Developmental Profile II (Rev. ed.) (Alpern & Shearer, 1980) was also used to obtain information from parents regarding their children's skills and abilities. This instrument contains developmentally sequenced items across five major areas (Physical, Self-Help, Social, Academic, and Language) and is administered by interviewing parents. Parents respond to selected items (questions) by indicating whether their child can (Yes) or cannot (No) perform a certain skill or behavior. (Selected information from the administration manual and an example data recording form can be found in Appendix D.)

Procedures

Observers and Observer Training

Three observers (not part of the intervention staff) collected data to determine interobserver and test-retest reliability for the CEEPS. Observers were systematically rotated so that each collected both interobserver and retest data. Prior to data collection the investigator conducted a training session which began after the observers had an opportunity to read the CEEPS Administration Manual and reviewed the data recording forms.

Training Procedures

Videotapes of nonhandicapped children not included in the study were used for training the observers. To give observers the opportunity to "practice" observing and scoring items across a range of skill/developmental levels children were videotaped who were six, 12, 16, and 30 months of age.

The three observers viewed each tape and scored each item for each CEEPS domain (fine motor, gross motor, cognitive, self-care, social, and communication). Items for specific domains were scored as relevant behaviors were seen on the tapes. For example, a cluster of fine motor behaviors might have been observed before all items in the cognitive domain were scored. In this case the observers switched from the cognitive domain to the fine motor domain and scored the pertinent fine motor items. Or, children might have exhibited communication and cognitive skills/behaviors at the same time. The observers then scored the appropriate items for both domains. As necessary, the videotapes were replayed during each observation session to score those items that were missed. Observers recorded scores on the CEEPS data recording forms using the scoring decision rules found in Appendix E.

Twelve training sessions, approximately one hour each, were conducted. Four sessions involved discussions (e.g., clarifying items and/or criteria) and eight sessions involved observing the videotapes and scoring CEEPS items. By the end of the eighth session at least 80 percent agreement was reached for items scored by the observers for each CEEPS domain.

Interobserver Reliability

Although "direct test" and "report" are allowed methods of data collection for the CEEPS, the preferred method of data collection is observation. This instrument was designed to be used by a variety of direct service personnel (e.g., teachers, assistants, therapists) while observing children in routine daily living settings (e.g., classroom, home). The extent to which the CEEPS is a reliable observation instrument was examined.

Two observers simultanously observed the same child and scored CEEPS items using the data recording forms. Using total domain scores (i.e., total number of items scored pass), score consistency (reliability) was determined for the total test and for each domain separately: 1) across subjects (i.e., handicapped and nonhandicapped), and 2) for the handicapped group of children.

Scheduling Procedures

The children were observed during the normal school day. Each child was observed for one day for approximately one-and-one-half hours. Observations began after the observer training was completed and continued for approximately 14 weeks.

All children in the EIP are assigned an identification (ID) number as soon as they are enrolled in the program. Children were observed consecutively in order of their ID numbers (e.g., number 271 was observed first, number 272 was observed second). When a child was absent, his/her name was placed at the end of the list and the next child was observed instead. When new children were enrolled in the program, their names were placed at the end of the list.

Observation Procedures

Two observers viewed each child in the classroom while she/he participated in routine activities (e.g., play time, activity groups, snack time). As the child changed activities, observers followed the child to ensure they were close enough to see and hear the child.

Observers scored items for specific domains as relevant behaviors were seen.

For example, items in the Eating Strand, Use of Utensils Strand (Self-Care domain), and the Interaction Strand (Social domain) might have been scored during snack time. In some situations it might have been appropriate to score items only in one particular domain. For example, items in the Gross Motor domain might have been scored during gross motor activities or free play time. The order of scoring domains and/or strands was left to the discretion of each observer.

The observers did not discuss data collection procedures (e.g., scores for items, children's performance) during the entire data collection period (i.e., for approximately 14 weeks). Each observer kept the CEEPS recording forms on a clipboard. At the end of each day (observation session) the investigator collected the clipboards and returned the clipboards to the observers the next day. The investigator collected and stored all completed data recording forms for the data analysis.

To ensure that procedures were correctly followed the investigator was present for the majority of observations and available to assist the observers (e.g., answer procedural questions). In addition, the investigator periodically checked the data collection forms for individual subjects and determined percent of agreement for items scored in each domain.

Data Collection Procedures

Children's performance was scored either pass (+) or fail (-) for each item in the CEEPS. Scores were recorded in the score box on the data recording forms. In a few cases observers did not have the opportunity to observe certain behaviors (e.g., the situation did not allow children to exhibit certain behaviors). When observers did not have the opportunity to observe certain behaviors the pertinent items were scored fail (-) and a "NO" (no opportunity) recorded in the "notes" column on the data recording forms. Scoring conditions and codes are explained and defined on the Scoring Decision Rules Sheet (Appendix E). The observers used these decision rules as guidelines for scoring.

Test-Retest Reliability

Test-retest reliability is the method for determining temporal stability of a measure (Anastasi, 1976). If a child is given the same test twice, with a brief time period between administrations, the scores should be similar for both administrations if the test is reliable. Test-retest reliability was examined to determine if CEEPS scores are consistent or reliable.

Scheduling Procedures

To prevent or restrict other factors such as intervention or maturation from causing a change in test scores (Sax, 1980) a one to two week test-retest interval was used.

Children (N=28) were observed according to the date of the first observation--that is, those children observed during the first week of interobserver reliability data collection were observed a second time one to two weeks later. For example, a child first observed on Monday during the first week in March was observed a second time on Monday during the second or third week of March (one to two weeks between observations). A three week interval was allowed when children were absent and an exact one to two week interval could not be maintained.

Observation Procedures

A third observer collected test-retest data. Scheduling and observation procedures described for interobserver reliability observations were also used for test-retest observations.

Data Collection Procedures

The third observer followed the same data collection procedures previously described (e.g., scoring procedures). For test-retest purposes the CEEPS data recording forms completed by the two observers collecting interobserver reliability data were alternately matched with the CEEPS data recording forms completed by the third observer collecting test-retest data. For example, the first and third data recording forms completed by the third observer were matched with the data recording forms completed by the first observer; the second and fourth data recording forms completed by the third observer were matched with the data recording forms completed by the second observer. This alternating sequence continued for all observation data recording forms. Because situations were often different between the first and retest observations (e.g., available opportunities for children to perform certain behaviors), items scored "NO" (no opportunity) by any two observers were omitted from the analysis. Agreement between each pair of data recording forms was calculated to determine score consistency or test-retest reliability.

Internal Consistency

If items on a particular test are sequenced in a hierarchy, children who pass more difficult items should pass the easier items. Sequential order of test items facilitates test administration: if a child passes the more difficult items, then it would not be necessary to assess lower level (easier items). Determining the extent to which items are in sequential order will assist interventionists in targeting exact skills in need of intervention.

However, due to the nature of items contained in the CEEPS traditional procedures to determine item sequence or score consistency (e.g., split-half reliability, scalogram analysis) are inappropriate. Each CEEPS domain is divided into strands that represent related groups of behaviors. Each strand contains a series of items called Long Range Goals (LRG) and Training Objectives (TO). The LRG items are thought to be arranged in a hierarchical sequence and assess the most complex behaviors associated with a specific group of behaviors in a strand. In some strands the TO items assess behaviors prerequisite to more complex behaviors (LRG items) and the items are arranged in a hierarchical sequence. In other strands the TO items do not assess prerequisite behaviors and are not in a hierarchical sequence but rather are thought to be arranged in a parallel fashion.

In addition, the nature and sequence of development is not uniform across children or skill domains. First, as children develop and acquire higher level skills they will not exhibit lower level or prerequisite skills. For example, a child who is labeling objects may no longer babble. A negative response might be reflected in test items for the nonexistent lower level skills. Second, there is not one consistent developmental sequence that all children follow. A child will not demonstrate the same level of performance across skills but rather, demonstrate different skills at different levels at the same time. The variation or unevenness across skill domains is a function of environmental influences (e.g., tasks and assessment methods) and a variety of different strategies used to perform behaviors (Fischer, 1980; Fischer & Corrigan, 1981). Neurological or biological factors

(e.g., seizure disorder, Down syndrome) also contribute to variations in skills and the sequence of development.

Scores on the CEEPS may not necessarily conform to a logical developmental pattern: that is, items are passed up to a certain point and failed after that point. However, examining patterns of successes and failures (pass-fail scores) might identify empirical relationships among items suggesting: 1) subsets of items within strands and domains that are arranged in a hierarchical sequence; 2) sections of the CEEPS in which all items should be administered regardless of the item arrangement; 3) items that should be omitted or rearranged within strands or domains; and 4) the extent to which domains represent different constructs or groups of behaviors.

Data Collection Procedures

Performance scores on the CEEPS posttests (Spring, 1983) were used to examine the relationship between items within each domain. The CEEPS was administered to the children by the intervention staff by primarily observing children as they participated in classroom activities. However, direct testing procedures were also used (e.g., procedures to elicit a behavior) and some assessment information was obtained from the parents (i.e., parent report).

Method of Assessment Comparison

Fischer (1980) makes a distinction between structured and spontaneous assessment and the type of information or results both methods yield. Structured assessment (e.g., use of a standardized test) exposes children to the same conditions: the same or similar tasks and standardized procedures. Skills exhibited during a structured assessment will not necessarily appear in children's spontaneous behavior. Spontaneous assessment involves assessing children as they routinely behave in various environments, increasing the likelihood of differentiating functional and nonfunctional skills.

The CEEPS was designed to be used primarily as an observation instrument (i.e., a spontaneous type of assessment). A premise of the CEEPS is that observation is a more appropriate method to assess children's normally occurring and functional behaviors than a more structured assessment (e.g., direct testing one skill at a time in an isolated setting). To lend support to the premise that observation is a more appropriate and perhaps accurate method of assessment, CEEPS scores (for LRG items) obtained by observation as the assessment method and direct testing (i.e., structured assessment) as the assessment method were compared to examine the relationship between spontaneous and structured assessment.

Scheduling Procedures

A group of handicapped children (N=8) were selected and assessed according to the test-retest data collection schedule. Data collection began in late April while retest observations were taking place and children were assessed according to the retest observation list (i.e., consecutively in order of ID numbers). A one to two week interval was allowed between the retest observation and the direct test assessment. For example, a child who was observed for retest data collection the third week in April was assessed by direct test the fourth week in April or first week in May (i.e., one to two week interval).

Data Collection Procedures

The CEEPS was administered by a data collector (not part of the intervention staff) in the testing room at the center. Each child was assessed during two 30 minute testing sessions on two different days. Direct testing involved scoring each LRG item separately, using standard materials, and using direct test procedures found in the CEEPS Administration Manual (an example of these procedures can be found in Appendix A). Items were scored either pass (+) or fail (-) and recorded on the data recording forms.

During the CEEPS administration a second data collector simultaneously observed the direct test assessment and scored each LRG item. Agreement between LRG scores obtained by the two data collectors was determined for each CEEPS domain.

Concurrent Validity

The concurrent validity of a test indicates the relationship between scores of a group of subjects on a particular test and a criterion measure administered at the same time or within a brief time period (Borg & Gall, 1979). This study examined the relationship between scores on the CEEPS and two criterion measures: Standardized test scores and parents' judgements about their children's skill levels and abilities.

Criterion Measures

The Gesell Developmental Schedules, a parent rating form, and the Developmental Profile II (Appendices B, C, and D respectively) were the criterion measures.

The parent rating form was piloted with a group of mothers (N=7) whose children did not participate in the study. The purpose of the pilot was to evaluate whether the form is appropriate for use by parents. While responding to the items, the mothers were asked to evaluate the rating form for: organization, clarity of items, inclusiveness of response categories, and usefulness of examples. Generally pilot participants felt the format was organized, items were understandable, and examples helpful. Two mothers found some items confusing and one mother misunderstood the response category USED TO.

Based on information from the pilot the rating form was revised (e.g., items thought to be confusing were rewritten) and a cover sheet defining the response categories (e.g., All the Time, Used To, Sometimes, and Not Yet) was added.

Data Collection Procedures

It is important that criterion ratings are not influenced by the rater's knowledge of scores obtained on a particular test (Anastasi, 1976). Criterion ratings were not obtained from the intervention staff (e.g., teacher judgement of children's abilities). Instead, the Gesell was administered by a trained tester and judgements (ratings) about children's skill levels and abilities was obtained from parents. The tester and each parent were not informed of a particular child's CEEPS scores until the tester has completed the Gesell and the parent has completed the parent rating form.

The Gesell was administered at the end of the year (Spring posttest) and the CEEPS was administered after the Gesell admininstration (i.e., there was not more than a two week interval between administrations of both instruments).

Parents (N=25) were asked to complete the rating form immediately before the tester administered the Gesell. The tester reviewed the directions and response categories while presenting the form to each parent and gave minimal assistance when necessary (e.g., clarified items). The majority of parents were able to complete the form independently.

Parents (N=24) were interviewed using the Developmental Profile II one to two weeks before or after the CEEPS administration. Two data collectors (not part of the intervention staff) contacted each parent and made arrangements (e.g., interview, date, arranged location) to conduct the interviews. Parents were interviewed individually and each interview ranged from 30 minutes to one hour in length.

Utility

The usefulness of an assessment instrument depends on its "practical" attributes as well as its psychometric integrity. The CEEPS was designed to be used by direct service personnel while observing children in intervention settings. The usefulness of the CEEPS partially depends on the extent to which this instrument is suitable for intervention settings and can be successfully administered by staff in a reasonable amount of time.

In addition to practical considerations, a related concern is whether the CEEPS is useful to design educational programs. A stated purpose of the CEEPS is to assist interventionists when identifying intervention goals (e.g., IEP goals) and developing specific training objectives and strategies. The usefulness of the CEEPS depends on whether this instrument accurately reflects performance of young handicapped children and provides specific information that can be translated into appropriate intervention programs.

In addition to examining the psychometric properties of the CEEPS, evaluating its utility (e.g., administration time) might provide important supplementary information about necessary modifications or changes needed in the instrument to enhance its practicality.

Data Collection Procedures

Information about the utility of the CEEPS was obtained from the intervention staff at the CHD. Staff members (N=4) who had used the CEEPS during the year were asked to fill out a form designed to provide evaluative information about the CEEPS. (The evaluation form can be found in Appendix F.) The form solicited information regarding the usefulness and appropriateness of items (i.e., LRGs and TOs) and criteria for successful performance in each domain (e.g., gross motor, cognition). In addition, respondents were asked to provide information regarding the usefulness of the CEEPS for designing instructional programs and to indicate the approximate time necessary to administer the CEEPS.

RESULTS

The results of this study are presented in three major sections. Reliability and validity data are reported in the first and second sections, respectively. In the third section the utility of the CEEPS is examined.

Results are reported for two groups of subjects. One group includes both handicapped and nonhandicapped children and the other group includes only handicapped children. Because not all parents completed the parent rating form or were interviewed and not all children were observed (i.e., interobserver and retest

data collection observations), the total number of children in both groups varies for the different analyses. Pearson moment correlations were computed as a measure of test reliability and validity. Criteria used to evaluate the obtained correlations are as follows: Very High (r = .90), High (r =.70-.90), Moderate (r =.50-.70), Low (r =.30-.50), and Little, if any correlation (r = .30) (Hinkle, Wiersma, & Jurs, 1979).

Reliability

Interobserver Reliability

CEEPS domain scores were computed by summing the number of items scored pass and total test scores were computed by summing the total domain scores. Using CEEPS domain and total test scores Pearson product moment correlations were computed to determine score consistency or reliability.

In general the results reported in Table 1 reveal scores are consistent when two observers simultaneously observe the same children and rate their performance on CEEPS items. Correlations for total test scores suggest a high degree of score consistency across CEEPS domains. In addition, observer scores appear to be consistent for both nonhandicapped and handicapped children. With the exception of the Cognitive domain, moderate to high correlations also suggest observer scores are consistent for individual domains.

Test-Retest Reliability

Means, standard deviations, and Pearson product moment correlations were computed as an index of temporal stability of the CEEPS. Results from the first test observation and the retest observation, conducted one to two weeks after the first observation, are reported in Table 2.

The findings suggest a high degree of score consistency or stability over time across CEEPS domains for both the total group and the handicapped group. Also, individual domain correlations reveal a moderate to high degree of score consistency for the Fine Motor, Gross Motor, Social, and Communication domains. In comparison, the Cognitive domain (total group) and Self-Care and Cognitive domains (handicapped group only) scores are less consistent from one test observation to the other.

Internal Consistency

Descriptive statistics for domain and total test scores from the CEEPS posttests are in Table 3. A coefficient alpha was computed as an estimate of internal consistency. This analysis yielded a coeficient alpha of .87 for the CEEPS and for each domain coefficients are: Fine Motor (r =.75), Gross Motor (r =.66), Self-Care (r =.75), Cognitive (r =.75), Social (r =.76), and Communication (r =.76).

Intercorrelations Among Domains

Pearson product moment correlations were computed between each domain and the total test to obtain an estimate of the extent to which CEEPS domains represent different constructs or related groups of behaviors. The results are reported in Table 4 for the total group (N=29) and Table 5 for the handicapped group (N=19).

The results, which are similar for both groups, suggest that some domains

TABLE 1. Correlation for Domain Total Scores
Obtained by Two Observers

Domains	Total Group N=28	Handicapped Group N=22
	r	r
Fine Motor	.64**	.59*
Gross Motor	.95**	.95**
Self Care[1]	.78**	.79**
Cognitive	.23	.32
Social	.83**	.82**
Communication	.85**	.76**
Total	.85**	.83**

* $p < .01$, two-tailed test
** $p < .001$, two-tailed test
[1] N=27 for the total group; N=21 for the handicapped group

TABLE 2. Temporal Stability of Domain and Total Scores

Domains	Total Group N=28					Handicapped Group N=22				
	First Observation		Retest Observation			First Observation		Retest Observation		
	M	SD	M	SD	r	M	SD	M	SD	r
Fine Motor	22.36	4.27	23.54	3.60	.62****	21.91	4.64	23.05	3.89	.62***
Gross Motor	26.89	6.35	27.84	6.55	.93****	25.68	6.56	26.41	6.69	.94****
Self Care	12.89	3.25	13.39	4.53	.83****	12.27	3.18	12.59	4.46	.48*
Cognitive	17.39	5.15	18.57	5.88	.46**	16.14	4.61	17.18	5.70	.45*
Social	11.68	3.51	11.18	3.91	.69***	10.95	3.62	10.32	3.97	.63***
Communication	25.79	13.47	29.39	15.32	.76****	21.36	10.92	25.32	13.87	.70****
Total Test	117.00	30.38	123.25	34.58	.84****	108.32	28.22	114.05	32.49	.82****

* $p < .05$, two-tailed test
** $p < .02$, two-tailed test
*** $p < .01$, two-tailed test
**** $p < .001$, two-tailed test

TABLE 3. Descriptive Statistics for CEEPS Domain and Total Scores

Domains	Total Group (N=29)		Handicapped Group (N=19)	
	M	SD	M	SD
Fine Motor	26.28	4.87	25.05	5.60
Gross Motor	30.41	9.21	27.58	10.28
Self Care	21.17	6.12	19.26	6.13
Cognitive	29.83	8.05	27.21	8.77
Social	12.83	3.50	11.90	4.01
Communication	35.93	16.95	28.95	16.03
Total	157.48	43.28	141.53	44.37

TABLE 4. Intercorrelation Among Domain and Total Scores for the Total Group (N=29)

Domains/Total	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	—	.63**	.74**	.85**	.75**	.67**	.84**
Gross Motor		—	.64**	.66**	.47*	.71**	.73**
Self-Care			—	.89**	.79**	.90**	.95**
Cognitive				—	.92**	.88**	.96**
Social					—	.78**	.86**
Communication						—	.95**
Total							—

* $p < .02$, two-tailed test
** $p < .001$, two-tailed test

Table 5. Intercorrelation Among Domain and Total Scores for the Handicapped Group (N=19)

Domains/Total	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	—	.56*	.74***	.83***	.71***	.61**	.83***
Gross Motor		—	.56*	.57*	.36**	.63**	.66**
Self-Care			—	.90***	.79***	.92***	.96***
Cognitive				—	.92***	.86***	.96***
Social					—	.77***	.85***
Communication						—	.94***
Total							—

* $p < .02$, two-tailed test
** $p < .01$, two-tailed test
*** $p < .001$, two-tailed test

might represent different constructs or contain items which measure distinct groups of behaviors. For example, the Gross Motor domain (Table 4) correlated at a low level with the Social domain (r =.47). While this low correlation might suggest both domains measures mutually exclusive skills or behaviors, other domains appear to contain redundant items or measure related or similar behaviors. For example the Cognitive domain and the Social domain did correlate at a high level (r =.92).

Item Analysis

Based on performance scores from the CEEPS posttests, an item analysis was performed to examine the empirical relationship between item and domain scores and item and total test scores.

Across subjects (N=29) the mean, item-to-domain, and item-to-total correlation was computed for performance scores on each item in each domain. Because CEEPS items are scored either pass or fail the mean represents the percentage of children who passed each item instead of the average score obtained for each item. In addition, some items were passed or failed by all children (e.g., "swallows liquids", "hops on one foot") which prevented the analysis from yielding means and correlations for 33 of the items. Item statistics for the remaining 173 items are reported for each domain and can be found on Tables 6,7,8,9,10, and 11 for the Fine Motor, Gross Motor, Self-Care, Cognitive, Social, and Communication domains, respectively.

Fine Motor Domain

Six items in the Reach, Grasp, and Release strand had low item-to-total correlations but, high item-to-domain correlations (1.3, 3.1, 4.0, 4.1, 4.2, and 4.3). One item in the Manipulation of Objects strand had low item-to-total correlations but, high item-to-domain correlations (1.1). Two items in the Eye-Hand Coordination strand had both low item-to-domain and item-to-total correlations (1.0 and 2.0); while four items in this strand had low item-to-total correlations but, high item-to-domain correlations (3.1, 3.2, 4.0, and 4.2). Correlations for the remaining items ranged from moderate to high levels.

Mean scores suggest some Training Objectives (items) are arranged in a hierarchical sequence of difficulty while others are not arranged in a hierarchical sequence. For example, in the Eye-Hand Coordination strand item 1.2 (fits shapes into place, such as a shape board) was passed by a greater proportion of children than item 1.1 (fits a variety of shapes into openings, such as a shape box), suggesting these items are arranged correctly according to difficulty. However, item 4.1 ("Watches hands") was passed by all children while 4.2 ("Brings hands to the mouth") was passed by 97 percent of the children. Perhaps item 4.1 is the easier of the two items and the order of these two items should be reversed.

Mean scores for Long Range Goals in this strand (Eye-Hand Coordination) appear to be correctly arranged in the intended sequence of difficulty: The first Long Range Goal item measuring the most difficult skill and the last Long Range Goal measuring the least difficult skill.

Gross Motor Domain

The greatest concentration of items in which mean scores and correlations were not obtained in this domain are in the first strand: Movement and Locomotion in Supine/Prone Position. These items measure early motor skills (e.g., "Lifts head

TABLE 6. Fine Motor Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to-Domain Correlation	Item-to-Total Correlation
Reach, Grasp, and Release	1.0		Places an object on top of another object	.86	.76	.72
		1.1	Drops a hand-held object onto or into a large target	.90	.68	.56
		1.2	Purposefully lets go of an object	--	--	--
		1.3	Unclenches fists	.97	.80	.48
	2.0		Transfers an object from one hand to the other hand	.93	.87	.64
		2.1	Holds object when placed in hand	--	--	--
	3.0		Grasps a pellet-sized object using a pincer grasp	.86	.82	.76
		3.1	Grasps a hand-sized object	.97	.80	.48
		3.2	Makes batting or swiping movements directed toward an object	--	--	--
	4.0		Reaches and obtains an object	.97	.80	.48
		4.1	Reaches toward an object making contact with the object	.97	.80	.48
		4.2	Reaches toward an object	.97	.80	.48
		4.3	Fully extends arms in all directions	.97	.80	.48
Manipulation of Objects	1.0		Rotates wrist on horizontal plane	.83	.73	.66
		1.1	Rotates forearm so it is brought from a plane down to palm up position	.97	.80	.48

	2.0		Brings two objects together	.93	.87	.64
		2.1	Holds two objects, one in each hand	.93	.87	.64
		2.2	Brings hands together at midline	--	--	--
Eye-Hand Coordination	1.0		Assembles a simple interlocking puzzle	.21	.38	.49
		1.1	Fits a variety of shapes into correct openings	.66	.57	.66
		1.2	Fits simple shapes into correct place	.83	.73	.66
	2.0		Reproduces shapes after demonstration	.21	.38	.49
		2.1	Draws circles and shapes	.59	.56	.82
		2.2	Scribbles	.93	.44	.50
	3.0		Acts on objects across midline of the body	.93	.87	.64
		3.1	Moves arms across midline of the body	.97	.80	.48
		3.2	Brings two opposing body parts together at midline	.97	.80	.48
	4.0		Brings objects to the mouth	.97	.80	.48
		4.1	Watches hands	--	--	--
		4.2	Brings hands to the mouth	.97	.80	.48

TABLE 7. Gross Motor Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to-Domain Correlation	Item-to Total Correlation
Movement and Locomotion in Supine/ Prone Position	1.0		Creeps forward using alternating arm and leg movements	.97	.51	.48
		1.1	Rocks in a creeping position	.97	.51	.48
		1.2	Crawls forward on stomach	.97	.51	.48
		1.3	Bears weight on hands and reaches with arms	.97	.51	.48
		1.4	Lifts head and chest off surface	--	--	--
	2.0		Rolls by turning segmentally from stomach to back and from back to stomach	.93	.45	.64
		2.1	Rolls from back to stomach	--	--	--
		2.2	Rolls from stomach to back	--	--	--
	3.0		Moves body parts independent of each other	--	--	--
		3.1	Turns head 90° to the right and left from midline position while lying on back	--	--	--
		3.2	Kicks legs alternately while lying on back	.97	.51	.48
		3.3	Waves arms in play while lying on back	--	--	--
Balance in Sitting	1.0		Climbs into and out of child size chair	.90	.51	.70
		1.1	Sits in a chair	.97	.51	.48
	2.0		Assumes sitting position on floor	.97	.51	.48

		2.1	Resumes upright sitting position after leaning to the left, right, and forward	.97	.51	.48
		2.2	Sits on floor with back erect and hands not touching floor	.97	.51	.48
		2.3	Holds head erect in supported sitting	.93	.73	.90
Balance and Mobility in Standing/ Walking	1.0		Walks swinging arms reciprocally	.59	.51	.94
		1.1	Walks avoiding obstacles	.79	.54	.59
		1.2	Walks without support	.90	.55	.49
		1.3	Walks forward with one hand supported	.90	.55	.58
	2.0		Stoops and recovers without support	.86	.56	.48
		2.1	Assumes a standing position without support	.83	.55	.57
		2.2	Pulls to a standing position using support	.97	.51	.48
Advanced Gross Motor Skills	1.0		Climbs up and down ladders	.52	.44	.77
		1.1	Climbs up and down stairs	.93	.57	.55
		1.2	Climbs on and off a low platform	.90	.43	.40
	2.0		Hops on one foot	--	--	--
		2.1	Jumps forward with both feet together	.21	.41	.45
		2.2	Jumps up in one place with two feet together	.48	.67	.82
	3.0		Runs avoiding obstacles	.59	.75	.83
		3.1	Runs	.66	.75	.74
	4.0		Pedals and steers a tricycle	.35	.54	.64
		4.1	Pushes riding toy with feet and steers	.66	.74	.70

		4.2	Sits on riding toy while adult pushes	.90	.84	.48
	5.0		Catches ball with two hands	.31	.50	.62
		5.1	Kicks ball	.62	.76	.82
		5.2	Throws ball	.86	.80	.64

TABLE 8. Self-Care Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to-Domain Correlation	Item-to-Total Correlation
Self-Feeding	1.0		Uses fork and spoon when self-feeding	.72	.81	.77
		1.1	Accepts food from a spoon and/or a fork	--	--	--
	2.0		Drinks from a cup/glass without spilling	.90	.54	.53
		2.1	Drinks from a cup/glass	.97	.38	.48
		2.2	Ingests liquid from a cup/glass without a nipple	--	--	--
	3.0		Bites off and chews hard-to-bite finger foods from a larger piece of food	.86	.58	.65
		3.1	Self-feeds hard-to-chew bite-sized pieces of finger food	.93	.51	.64
		3.2	Bites off and chews easy-to-bite finger foods from a larger piece of food	--	--	--
		3.3	Self-feeds easy-to-chew bite-sized pieces of finger food	--	--	--
	4.0		Using tongue, moves food/liquid within mouth	--	--	--
		4.1	Closes lips around a cup and eating utensils	--	--	--
		4.2	Swallows solids	--	--	--
		4.3	Swallows liquids	--	--	--
		4.4	Ingests liquid by sucking on a nipple	--	--	--

Preparing and Serving Food Using Utensils and Containers	1.0		Pours liquid from one container into another	.66	.77	.81
		1.1	Uses a utensil to transfer food from one container to another	.76	.77	.77
		1.2	Uses a spoon to stir foods	.76	.78	.78
Personal Hygiene	1.0		Completes toileting routine independently	.17	.53	.44
		1.1	Demonstrates complete bowel/bladder control, child initiated trips to toilet	.38	.77	.64
		1.2	Demonstrates complete bowel/bladder control, adult scheduled trips to toilet	.38	.75	.70
		1.3	Indicates awareness of soilet/wet pants or diapers to adult	.72	.75	.79
	2.0		Performs simple self-care activities	.38	.77	.67
		2.1	Washes and dries face	.48	.74	.58
		2.2	Washes and dries hands	.62	.86	.81
		2.3	Obtains tissue and effectively cleans nose	.45	.84	.71
		2.4	Brushes teeth with assistance	.79	.64	.65
		2.5	Combs/brushes hair with assistance	.66	.80	.70
Dressing and Undressing	1.0		Independently dresses and undresses self	.10	.41	.34
		1.1	Independently dresses self	.10	.42	.35
		1.2	Independently undresses self	.38	.66	.61

TABLE 9. Cognitive Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to Domain Correlation	Item-to Total Correlation
Sensory Stimuli	1.0		Responds to auditory, visual, and tactile stimulation	--	--	--
		1.1	Responds to auditory stimulation	--	--	--
		1.2	Responds to visual stimulation	--	--	--
		1.3	Responds to tactile stimulation	--	--	--
Object Permanence	1.0		Locates or successfully searches for an object/person not visually apparent	.90	.77	.70
		1.1	Systematically searches for lost, hidden, or displaced object/person	.90	.77	.70
		1.2	Searches for completely hidden or displaced object/person	.97	.57	.41
		1.3	Searches for partially hidden or displaced object/person	.97	.57	.41
	2.0		Follows object/person to point of disappearance	.93	.73	.64
		2.1	Watches rapidly moving objects/people in the environment	.93	.73	.64
		2.2	Focuses on objects/people present in the environment	--	--	--
Imitation	1.0		Imitates new words and motor actions approximately	.59	.80	.83
		1.1	Imitates unfamiliar vocalizations approximately	.69	.76	.79

		1.2	Imitates sequence of unfamiliar motor actions approximately	.72	.76	.68
Causality	1.0		Can in some way directly activate toy/object to produce a desired outcome	.90	.78	.70
		1.1	Attempts to activate toy/object manually	.97	.57	.41
		1.2	Following event by a simple toy/object, produces action to indicate interest	--	--	--
	2.0		Following the performance of a familiar action/game, performs part of action/game to initiate continuation	.97	.57	.41
		2.1	Attempts by manipulating adult body part(s) to continue familiar action/fame	.90	.77	.70
Problem Solving	1.0		When confronted with a problem, uses different strategies to solve it	.69	.71	.67
		1.1	Transports more than one object	.90	.77	.70
		1.2	Obtains non-reachable objects	.93	.73	.64
		1.3	Navigates objects around barriers	.93	.73	.64
		1.4	Sequentially stacks and nests unfamiliar objects	.66	.73	.70
Object Differentiation	1.0		Uses an imaginary object in play	.52	.72	.79
		1.1	Uses one object to represent another	.66	.78	.83
	2.0		Uses functionally/socially appropriate actions with objects	.90	.78	.70
		2.1	Uses objects in combinations	.90	.78	.70
		2.2	Acts on objects using three or more simple motor actions	.90	.78	.70
		2.3	Acts on objects by using sensory examination	.93	.61	.50

Pre-Academic Skills	1.0		Groups or classifies related objects	.59	.80	.83
		1.1	Groups similar pictures	.48	.71	.82
		1.2	Groups similar objects	.66	.81	.82
	2.0		Matches similar pictures to a model	.48	.68	.77
		2.1	Matches objects to a picture model	.66	.80	.81
		2.2	Matches objects to an object model	.72	.85	.82

TABLE 10. Social Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to-Domain Correlation	Item-to-Total Correlation
Complies with Social Conventions	1.0		Complies with directions given to the child and to a group	.66	.66	.70
		1.1	Complies with directions given to the child	.79	.87	.79
		1.2	Complies with directions given to a group	.72	.82	.82
	2.0		Demonstrates appropriate behavior in a variety of different routines	.86	.63	.53
		2.1	Initiates behaviors associated with daily routines	.90	.75	.58
		2.2	Responds appropriately to changes in normal routines	.93	.54	.33
Interaction	1.0		Initiates, responds, and maintains age appropriate interaction with adults	.90	.84	.70
		1.1	Initiates interaction with adults	.93	.66	.64
		1.2	Responds to interaction initiated by adults	--	--	--
	2.0		Initiates, responds, and maintains age appropriate interaction with peers	.66	.68	.62
		2.1	Initiates interaction with peers	.79	.79	.69
		2.2	Responds to interaction initiated by peers	.86	.88	.71
	3.0		Initiates and maintains age appropriate interaction with toys/objects	.90	.71	.49

		3.1	Initiates interaction with toys/objects	.97	.60	.41
		3.2	Shows interest by watching others interact with toys/objects	.97	.60	.41

TABLE 11. Communication Domain Item Statistics (N=29)

Strand	LRG	TO	Items	M	Item-to-Domain Correlation	Item-to-Total Correlation
Social Communicative Transactions	1.0		Uses social communicative signals to spontaneously interact with adult	.90	.56	.70
		1.1	Gains adult attention and then points to an object or event	.90	.56	.70
		1.2	Points to object and vocalizes	.93	.47	.49
		1.3	Looks at object/person and vocalizes	.93	.47	.49
		1.4	Responds with a communicative signal to adult's question	.97	.35	.41
	2.0		Engages in reciprocal vocal exchanges with others	.86	.62	.71
		2.1	Engages in reciprocal motor and vocal exchanges with others	.86	.62	.71
		2.2	Engages in reciprocal motor activities/ games with others	.97	.35	.41
		2.3	Imitates reciprocal responses to systematic tactile stimulation	.97	.35	.41
	3.0		Follows adult's marking of mutual topic	.86	.61	.76
		3.1	Attends to an object while adult comments on it	.86	.62	.71
		3.2	Follows adult's pointing gestures	.97	.35	.41
		3.3	Attends to an object when pointed to or manipulated	--	--	--

	4.0		Attends to speech while speaker is within sensory field	--	--	--
		4.1	Attends to an object and speech presented within reach of child	--	--	--
		4.2	Attends to noise-producing object within child's reach	--	--	--
		4.3	Attends to tactile stimulation paired with a salient sound	--	--	--
Comprehension of Words and Sentences	1.0		Follows two-step directions without contextual cues	.48	.88	.80
		1.1	Follows two-step directions with contextual cues	.66	.80	.79
		1.2	Follows one-step directions without contextual cues	.72	.73	.79
		1.3	Follows one-step directions with contextual cues	.86	.61	.76
	2.0		Locates named common pictures in an unfamiliar context	.62	.79	.77
		2.1	Locates named common objects, people, and events without contextual cues	.69	.79	.82
		2.2	Locates named common pictures in a familiar context	.72	.76	.82
		2.3	Locates named common objects, people, and events with contextual cues	.79	.69	.80
Production of Signals, Words, and Sentences	1.0		Uses two inflectional markers in same utterance	.21	.52	.43
		1.1	Uses the inflectional marker "s" to express possession	.21	.56	.43
		1.2	Uses the inflectional marker "s" to express plurality	.24	.61	.51

		1.3	Uses the inflectional marker "ing" to express the present progressive	.24	.60	.50
	2.0		Uses three-word utterances (as 30% of language sample)	.35	.77	.67
		2.1	Uses three-word utterances in the form of negative imperative	.41	.84	.74
		2.2	Uses three-word utterances in the form of a question	.38	.81	.71
		2.3	Uses three-word utterances in the form of action-object-location	.35	.77	.67
		2.4	Uses three-word utterances in the form of agent-action-object	.41	.84	.74
	3.0		Uses three relational words with object labels	.45	.87	.80
		3.1	Uses two-word utterances to express possession	.52	.94	.85
		3.2	Uses two-word utterances to express location	.41	.80	.73
		3.3	Uses two-word utterances to express attribution	.35	.77	.67
		3.4	Uses two-word utterances to express recurrence	.52	.94	.85
		3.5	Uses two-word utterances to express non-existence	.48	.92	.82
		3.6	Uses one relational word with several object labels	.48	.92	.82
	4.0		Uses at least ten different two-word utterances	.52	.94	.85
		4.1	Uses agent-action, action-object, and agent-object utterances	.52	.94	.85

		4.2	Uses successive single-word utterances	.52	.94	.85
		4.3	Uses single-words plus gestures	.55	.91	.84
	5.0		Uses a vocabulary of at least 60 words	.52	.94	.85
		5.1	Uses at least five descriptive words	.38	.81	.72
		5.2	Uses at least 10 action words	.52	.94	.85
		5.3	Uses at least five relational words	.45	.89	.80
		5.4	Uses at least two pronouns	.48	.92	.82
		5.5	Uses at least 30 object/event labels	.52	.94	.85
		5.6	Uses at least five person labels	.52	.94	.85
	6.0		Uses consistent word approximations	.59	.88	.82
		6.1	Uses consistent consonant-vowel-consonant combinations	.69	.75	.75
		6.2	Uses inconsistent consonant-vowel combinations	.83	.62	.68
		6.3	Uses vocalizations	.90	.56	.70

and chest off surface") and were likely passed by all the children. The lack of data prevents examining the extent to which the items are arranged in a hierarchical sequence and whether they correlate with domain and total test scores.

Of the remaining six items in the Movement and Locomotion strand, five items had low item-to-total correlations but, acceptable item-to-domain correlations (1.0, 1.1, 1.2, 1.3, and 3.2); one item had acceptable item-to-total correlations and low item-to-domain correlations (2.0). Four items in the Balance in Sitting strand and three items in the Balance and Mobility strand had low item-to-total correlations but, acceptable item-to-domain correlations (1.1, 2.0, 2.1 and 1.2, 2.0, 2.2, respectively). Two items in the Advanced Gross Motor Skills strand had both low item-to-domain and item-to-total correlations (1.2 and 2.1). Correlations for the remaining items in this domain range from acceptable to very high.

Generally, mean scores suggest the Long Range Goals and Training Objectives in the Gross Motor domain are arranged in a hierarchical sequence. For example, mean scores in the Advanced Gross Motor Skills strand reveal that a greater proportion of children pass the easier or lower level items than the more difficult or higher level items.

Self-Care Domain

Similar to the Movement and Locomotion strand in the Gross Motor domain, the Self-Feeding strand in this domain contains nine items in which the lack of mean scores and correlations prevents an examination of item sequence and the extent to which the items correlate with domain and total test scores.

Of the remaining five items in the Self-Feeding strand only one item (2.1) had low correlations (for both the domain and total test). Item-to-domain correlations and item-to-total correlations for the majority of items in the Self-Care domain ranged from acceptable to high. One item in the Personal Hygiene strand had a low item-to-total correlation but, an acceptable item-to-domain correlation (1.0). Two items in the Dressing and Undressing strand had both low item-to-domain and item-to-total correlations (1.0 and 1.1).

Items in the Preparing and Serving Foods strand and items under the second Long Range Goal (2.0) in the Personal Hygiene strand were not intended to represent a logical developmental sequence of skill acquisition. The mean scores for these items confirm that these items are not arranged in a hierarchical sequence of difficulty. For example, the proportion of children who passed items following the Long Range Goal "performs simple self-care activities" varies, suggesting these skills are not, and perhaps should not be, arranged in a sequenced progression of skill difficulty (i.e., one skill obtained before the next skill).

Cognitive Domain

All items in the Sensory Stimuli strand were passed by all the children in the sample, which prevents an examination of item sequence and correlations of item scores to domain and total test scores.

Two items in the Object Permanence strand (1.2 and 1.3) and two items in the Causality strand (1.1 and 2.0) had low item-to-total correlations but, acceptable item-to-domain correlations. Acceptable to high item-to-domain and item-to-total correlations were obtained for the remaining items in the Cognitive domain.

Mean scores in the Cognitive domain suggest the Long Range Goals and Training

Objectives in this domain are arranged in a hierarchical sequence.

Social Domain

One item in the Complies with Social Conventions strand (2.2) and three items in the Interaction strand (3.0, 3.1, and 3.2) had low item-to-total correlations but, much higher item-to-domain correlations. The remaining items in the Social domain had moderate to high item-to-domain and item-to-total correlations.

In general mean scores suggest items in the Social domain are arranged in a hierarchical sequence of item difficulty. However, the order of the following directions items in the first strand (compliance) might need to be changed. A greater proportion of children passed Training Objective 1.1 (directions to a child) than Training Objective 1.2 (directions to a group) suggesting the order of these items might need to be reversed.

Communication Domain

The majority of items in the Communication domain had high to very high item-to-domain and item-to-total correlations. Six items in the Social Communicative Transactions strand had low item-to-domain and item-to-total correlations (1.2, 1.3, 1.4, 2.2, 2.3, and 3.2). Two items in the Production of Signals, Words, and Sentences strand had low item-to-total correlations but, acceptable item-to-domain correlations (1.0 and 1.1).

Mean scores suggest that Long Range Goals and Training Objectives in the Communication domain are arranged in a hierarchical sequence of difficulty.

Observation and Direct Test Comparison

Long Range Goal scores obtained by observation and by direct test (i.e., directly testing one item at a time) were summarized into total domain scores and total test scores. Pearson product moment correlations were computed to examine the relationship between performance scores obtained by both methods of assessment (i.e., observation and direct test).

Percent of agreement was calculated for items scored by the data collector who administered the direct test and a second data collector who simultaneously observed the test and scored CEEPS items. Agreement between scores was greater than 80 percent for each domain and the overall percent of agreement was 89 percent.

As Table 12 shows the correlation for total test scores ($\underline{r}$ =.69) suggests that observation might be a fairly accurate (reliable) method of assessment when compared to direct test scores for a selected group of handicapped children (N=8). Although the Fine Motor, Self-Care, and Social domain correlations reflect little, if any, agreement between scores obtained by observation and direct test, the remaining domain correlations are more promising. Correlations between scores obtained by observation and direct test range from moderate to very high for the Cognitive, Gross Motor, and Communication domains.

Validity

Concurrent Validity

The relationship between CEEPS performance scores and three criterion measures was examined as a measure of concurrent validity. Pearson product moment

TABLE 12. Correlation Between Direct Test and Observation Scores for CEEPS Long Range Goal Items
N=8

Domains						
Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
.39	.79**	-0.22	.57	-0.18	.92***	.69*

* $p < .10$, two-tailed test
** $p < .02$, two-tailed test
*** $p < .001$, two-tailed test

correlations were computed to examine the relationship between CEEPS scores and standardized test scores and parent's judgements of their children's skills and abilities.

Gesell and the CEEPS Comparison

Performance scores from the Gesell were summarized and converted into Developmental Quotient (DQ) scores and Maturity Age (MA) scores for the Gesell overall General Development index and for each scale: Fine Motor, Gross Motor, Personal-Social, Adaptive, and Language.

Results are reported for the total group (N=27) on Tables 13 and 14 and for the handicapped group (N=19) on Tables 15 and 16.

Overall, correlations reveal a strong relationship between performance scores obtained on both instruments. The correlation between CEEPS total test scores and Gesell DQ and MA scale scores and the General Development index is high. The pattern of correlations between the CEEPS Fine Motor domain and the Gesell overall (i.e., General Development index) and scale scores are consistently lower than the other domains.

Parent Ratings and the CEEPS Comparison

Items on the parent rating form which parents checked Yes and Used To were tallied and summarized into total domain scores and total overall rating scores. Correlations were computed for each domain and the total test to examine the relationship between CEEPS and parent rating scores.

Overall, the results reported on Table 17, suggest a high degree of congruence between CEEPS performance scores and parent rating form scores. With the exception of the Fine Motor domain, correlations suggest a strong relationship between CEEPS domain scores and the parent rating form domain scores.

Developmental Profile II and the CEEPS Comparison

Item scores (question ratings) obtained during parent interviews were summarized and converted into age level scores (age in months) for each domain in the Developmental Profile II. Correlations were computed for each domain on both instruments to examine the relationship between CEEPS scores and Developmental Profile II scores.

The results are reported in Table 18 for the total group (N=24) and Table 19 for the handicapped group (N=17). Correlations between domain scores range from moderate to high suggesting a strong relationship between CEEPS domain scores and scores obtained from parent interviews.

Utility

Information from the CEEPS evaluation forms completed by the staff working in the EIP (N=4) indicates the CEEPS, for the most part, provides appropriate and useful information for designing educational programs for young handicapped children. One staff member used the Long Range Goals and Training Objectives directly as intervention targets (i.e., IEP goals and program objectives). Although one staff member used many CEEPS items as intervention targets, many items were felt not suitable for intervention targets (no example of these items were given). Two staff members suggested the inclusion of smaller-sequential programming steps

TABLE 13. Correlation Between CEEPS Domain and Total Scores and Gesell Scale and Overall Developmental Quotient Scores
Total Group N=27

Gesell Scales and Overall General Development Index	Domains						
	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	.57**	.68***	.74***	.73***	.68***	.75***	.77***
Gross Motor	.60***	.79***	.73***	.74***	.65***	.70***	.77***
Personal-Social	.52**	.67***	.67***	.75***	.68***	.72***	.76***
Adaptive	.56**	.69***	.76***	.77***	.71***	.82***	.81***
Language	.56**	.70***	.76***	.71***	.81***	.83***	.82***
General Development	.56**	.70***	.75***	.79***	.71***	.82***	.81***

* $p < .02$, two-tailed test
** $p < .01$, two-tailed test
*** $p < .001$, two-tailed test

TABLE 14. Correlation Between CEEPS Domain and Total Scores and Gesell Scale and Overall Maturity Age Scores
Total Group N=27

Gesell Scales and Overall General Development Index	Domains						
	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	.63	.77	.83	.79	.67	.88	.87
Gross Motor	.65	.87	.82	.81	.65	.84	.87
Personal-Social	.65	.84	.92	.88	.72	.93	.93
Adaptive	.64	.80	.87	.85	.70	.95	.92
Language	.62	.79	.85	.86	.70	.95	.91
General Development	.64	.80	.86	.85	.70	.95	.92

All rs are significant at p .001, two-tailed test

TABLE 15. Correlation Between CEEPS Domain and Total Scores and Gesell Scale and Overall Developmental Quotient Scores Handicapped Group N=19

Gesell Scales and Overall General Development Index	Domains						
	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	.54*	.63**	.74***	.67**	.67**	.66**	.72***
Gross Motor	.68**	.87***	.69**	.79***	.67**	.66**	.80***
Personal-Social	.54*	.66**	.72***	.77***	.72***	.66**	.76***
Adaptive	.58**	.69**	.82***	.81***	.77***	.84***	.85***
Language	.59**	.75***	.85***	.90***	.82***	.86***	.89***
General Development	.58**	.70***	.82***	.82***	.77***	.84***	.85***

* $p < .02$, two-tailed test
** $p < .01$, two-tailed test
*** $p < .001$, two-tailed test

TABLE 16. Correlation Between CEEPS Domain and Total Scores and Gesell Scale and Overall Maturity Age Scores
Handicapped Group N=19

Gesell Scales and Overall General Development Index	Domains						
	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Fine Motor	.57**	.75***	.80***	.75***	.64**	.82***	.83***
Gross Motor	.62**	.89***	.72***	.80***	.61**	.79***	.85***
Personal-Social	.60**	.82***	.91***	.88***	.70***	.89***	.91***
Adaptive	.58**	.77***	.83***	.83***	.68**	.94***	.90***
Language	.56*	.79***	.84***	.88***	.71***	.94***	.91***
General Development	.58**	.78***	.83***	.83***	.68**	.93***	.90***

* $p < .02$, two-tailed test
** $p < .01$, two-tailed test
*** $p < .001$, two-tailed test

TABLE 17. Correlation Between CEEPS Long Range Goal and Total Scores and Parent Ratings of Their Children's Skills and Abilities

		Domain						
	N	Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication	Total
Total Group	25	.49*	.80***	.76***	.79***	.72***	.92***	.90***
Handicapped Group	18	.24	.72***	.69**	.71***	.70**	.87***	.83***

* $p < .02$, two-tailed test
** $p < .01$, two-tailed test
*** $p < .001$, two-tailed test

TABLE 18. Correlation Between CEEPS Scores and Parent Judgements of Their Children's Skills and Abilities
Total Group N=24

Developmental Profile II Domains	Domains: Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication
Physical	.58***	.65***	.68****	.64***	.54***	.62***
Self-Help	.48*	.55***	.68****	.60***	.52**	.61***
Academic	.60***	.64***	.78****	.75****	.66****	.85****
Social	.67****	.63***	.77****	.74****	.63***	.74****
Language	.56***	.63***	.78****	.74****	.64***	.86****

* p 05, two-tailed test
** p 02, two-tailed test
*** p 01, two-tailed test
**** p 001, two-tailed test

TABLE 19. Correlation Between CEEPS Scores and Parent Judgements of Their Children's Skills and Abilities Handicapped Group N=17

Developmental Profile II Domains	Domain: Fine Motor	Gross Motor	Self-Care	Cognitive	Social	Communication
Physical	.60***	.68****	.61****	.68****	.56***	.52**
Self-Help	.45*	.55**	.59****	.63****	.54**	.47*
Academic	.66****	.69****	.81*****	.89*****	.79*****	.89*****
Social	.66****	.71****	.80*****	.84*****	.70****	.72****
Language	.58***	.69****	.84*****	.85*****	.74*****	.93*****

* $p < .10$, two-tailed test
** $p < .05$, two-tailed test
*** $p < .02$, two-tailed test
**** $p < .01$, two-tailed test
***** $p < .001$, two-tailed test

would be helpful when designing programs for many children.

The staff felt that CEEPS administration time varies according to the child being assessed (e.g., degree of impairment, age) and the extent to which the staff is familiar with the children. Apparently the first CEEPS administration (e.g., fall pretest) takes longer to administer (two to four hours per child) than mid-year or end of the year administrations, which range from 30 minutes to one hour per child.

DISCUSSION

Professionals working with young handicapped children are frequently confronted with a dilemma. The need to provide appropriate and effective educational programs and demonstrate the efficacy of intervention efforts is, in part, dependent on adequate assessment instruments and strategies. However, few assessment instruments exist which are suitable for populations of handicapped children under three years of age. The majority of available assessment instruments inadequately assess skills and abilities of young handicapped children and provide limited information for educational and evaluation purposes.

The findings from this study suggest that the Comprehensive Evaluation and Programming System (CEEPS) is perhaps a viable assessment alternative for those working with handicapped preschool children. This study examined selected psychometric properties of the CEEPS and explored the instrument's usefulness for designing educational programs. Findings suggest that not only can the CEEPS be administered in a reasonable amount of time and provides information which assists interventionists in the formulation of intervention goals and instructional programs, but the CEEPS might be considered a reliable and valid assessment instrument.

Reliability

Although "direct test" and "report" are allowed methods of assessment for the CEEPS, the preferred method of data collection is observation. The underlying premise of the CEEPS is that observing children in routine settings while they participate in daily activities increases the likelihood of observing (i.e., assessing) naturally occurring (i.e., spontaneous) and functional behaviors.

This study, which examined the extent to which the CEEPS is a reliable observation instrument, revealed that scores obtained through observation are fairly accurate and consistent over time.

Score Consistency

Correlations for total test scores suggest a high degree of agreement between observer scores when two observers simultaneously observe the same children and score CEEPS items. Similarly, when children were observed twice with a brief time period between observations CEEPS total test scores were consistent or stable from one test observation to the other. However, agreement between observer scores for items in individual domains varied as indexed by low, moderate, and high correlations. Observer scores differed significantly for items in the Cognitive domain and test-retest correlations were substantially lower for Cognitive domain scores than the majority of other domain scores.

A review of the data recording forms for both interobserver and test-retest data revealed a greater proportion of items scored differently for items in the Object Permanence, Imitation, Causality, and Problem Solving strands than in other strands. For example, the Long Range Goal "Imitates new words and motor actions approximately" and Training Objectives "Imitates unfamiliar vocalizations approximately" and "Imitates a sequence of unfamiliar motor actions approximately" (Imitation strand) were frequently scored differently by the observers. The lack of agreement between observer scores for these items, and perhaps other items in the Cognitive domain might be due to several factors. First, the lack of score agreement might be a function of observer error (e.g., recording a pass score when the observer intended to record a fail score). Second, perhaps the items are poorly written (e.g., confusing wording) and/or the behaviors to be assessed are poorly defined in the criteria (e.g., unfamiliar actions, approximate imitations). Finally, perhaps many cognitive skills such as imitation behaviors, are difficult to assess by observation and perhaps require some degree of inference when scoring items using dichotomous scores (i.e., pass or fail scores).

Although, there was some disagreement between observer scores for both interobserver and test-retest scores, overall the results provide some evidence that CEEPS items accurately measure children's skills and abilities and scores are consistent or stable over time. Overall, the CEEPS was found to be a generally reliable observation instrument with the present population.

The comparison between CEEPS scores obtained by observation and scores obtained by directly testing one item at a time lends some support to the credibility of the CEEPS as an observation instrument. Unfortunately the observation and direct test comparison is limited because of the small number of children in the sample (which might partially account for the low correlations obtained for several domain scores). However, correlations for total test scores reveal substantial agreement between observation and direct test scores for many of the items in the CEEPS.

CEEPS Domains and Items

Intercorrelations Among Domains

Correlations were computed between each domain and the total test to examine the extent to which domains represent distinct constructs or contain items which measure specific groups of behaviors. The results suggest that some domains appear to represent different constructs while other domains appear to contain redundant items or measure related or similar skills. For example, the Gross Motor domain correlated at a low level with the Social domain while the Cognitive domain correlated at a high level with the Fine Motor domain. These results are not surprising considering the nature of skills and behaviors that items in these domains assess and the difficulty in categorizing early developmental behaviors in mutually exclusive categories (i.e., domains). Items in the Social domain measure compliance and interaction skills and items in the Gross Motor domain measure mobility, balance, and advanced gross motor skills. Items in these two domains appear to measure unrelated skills and a low correlation between these domains might be expected. However, the Cognitive domain may measure skills that are dependent on other skills in other domains. For example, an infant who demonstrates object permanance by removing a cover which hides a toy also demonstrates reaching and grasping skills (typically considered fine motor skills). A high correlation might be expected between domains which measure related skills such as the Cognitive and Fine Motor domains.

Although some domains might contain redundant items, a careful examination of individual items may be necessary before items are eliminated from domains because of high intercorrelations.

Item Analysis

Usually an item analysis is conducted to help determine which items should be included in a test and which items should not be included in a test. The item analysis conducted in this study did provide some useful information about the items contained in the CEEPS. The mean scores (percentage of children who passed each item) provided information about item arrangement and the item-to-domain and item-to-total correlations provided information about which items correlate with the construct(s) the test is measuring.

However, an interpretation of the item analysis conducted in this study should be qualified by two possible limitations. Generally the inclusion of items in a test is determined by those items which: 1) have a large standard deviation and 2) correlate highly with the total test score (a relability index) (Becker & Engelmann, 1976).

Scores on the CEEPS represent dichotomous variables: pass scores and fail scores. As previously mentioned mean scores which were calculated for each item represent the percentage of children who passed the item rather than the mean or average item performance score. In addition, dichotomous scores prevent the calculation of meaningful standard deviations (i.e., range of item difficulty). For dichotomous scores (i.e., pass-fail scores) the standard deviations correlate with the mean score and do not provide information about the range of item difficulty. For example, a mean score of .50 (score passed by 50 percent of the children) results in a standard deviation of approximately .50; a mean score of .97 (score passed by 97 percent of the children) results in a standard deviation of approximately .19. In other words, the greater percentage of children who pass (or fail) an item the smaller the standard deviation; as the percentage of children who pass (or fail) an item decreases the larger the standard deviation. Without a mean score which represents the average performance on items (i.e., mean level of difficulty) and standard deviations which indicate the range of difficulty on both sides of the mean it might be inappropriate to make decisions about the inclusion or exclusion of items contained in the CEEPS.

Also, items are usualy preferred for inclusion in a test which correlate highly with the total test score (i.e., correlate with what the test is measuring). Typically, item analyses are conducted on standardized tests which often measure a general construct (e.g., intelligence). The CEEPS, a criterion-referenced test, may not measure one general construct but several as represented by different domains of behavior (e.g., motor, cognition, social). Examining items which have high item-to-domain correlations might suggest which items correlate with the construct individual domains are measuring rather than examining whether items correlate with the overall test (item-to-total correlations).

An additional analysis might be equally as helpful. Each domain is divided into a series of strands which represent specific related groups of behaviors. Items within strands are thought to measure specific skills and behaviors relevant to the individual strands. Perhaps item-to-strand correlations would provide additional information to determine the extent to which items within strands are measuring specific groups of behaviors thought to be measured in each strand.

Another possible limitation of the item analysis conducted in this study is the relatively small number of children and the limited age range of children who participated in this study. A number of items were passed by all the children and consequently were eliminated from the analysis (i.e., mean scores and correlations could not be computed). In order to obtain information about the items that were eliminated from the analysis (e.g., "swallows solids" "lifts head and chest off surface") performance scores are needed for younger children (i.e., less than 20 months of age).

Regardless of certain limitations, the item analysis did provide some important information. The mean scores (percentage of children who passed the items) suggest which items: 1) might be arranged in a hierarchical sequence; 2) are not and perhaps should not be arranged in a hierarchical sequence; and 3) should be rearranged into a hierarchical sequence. Knowledge of the item sequence will facilitate test administration. For example, interventionists will need to assess all items within strands which are not intended to be arranged in a sequence and will only assess certain items within strands which are arranged in a logical developmental sequence.

Validity

The relationship between scores on the CEEPS and the Gesell, a parent rating form, and the Developmental Profile II was examined as a measure of concurrent validity.

Overall, the results suggest a strong relationship between CEEPS scores and scores on the three criterion measures. The results might imply the CEEPS measures skills and behaviors which it purports to measure and might be used to estimate children's present (or current) skill levels across major domains of development.

Although generally there was substantial congruence beween CEEPS scores and parent's perception of their children's skills and abilities, there was a weak relationship between CEEPS Fine Motor domain scores and the parent rating form. The lack of congruence between CEEPS scores and parents's ratings of their children's fine motor skills might be a function of the criterion measure (i.e., rating form) or parent's inability to correctly assess fine motor skills and behaviors. Also the lack of congruence between scores in the Fine Motor domain might be due to error when the interventionists administered the CEEPS during Spring posttests.

Utility

The usefulness of the CEEPS depends on its practical attributes as well as its psychometric integrity. This study suggests the CEEPS can be successfully administered by interventionists in educational settings in a reasonable amount of time. In addition, based on information from a limited number of interventionists the CEEPS appears to provide appropriate information which can be translated into intervention programs for young handicapped children.

Significance of Study

There are many assessment instruments available, however most available instruments are inappropriate for use with handicapped children under three. The CEEPS offers a potentially useful assessment alternative that enables comprehensive assessment of skills and abilities and provides information for educational programming and evaluation purposes.

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APPENDIX A

SELECTED PAGES FROM THE CEEPS ADMINISTRATION MANUAL AND DATA RECORDING FORMS

CEEPS: Number of Strands and Items

DOMAIN	STRANDS	NUMBER OF STRANDS	NUMBER OF TERMINAL GOALS	NUMBER OF TRAINING OBJECTIVES	NUMBER ITEMS
Fine Motor	A Reach, Grasp, and Release	1	4	9	13
	B Manipulation of Objects	1	2	3	5
	C Eye-Hand Coordination	1	4	8	12
	Total	3	10	20	30
Gross Motor	A Movement and Location in Supine/Prone Position	1	3	9	12
	B Balance in Sitting	1	2	4	6
	C Balance and Mobility in Standing/Walking	1	2	5	7
	D Advanced Gross Motor Skills	1	5	9	14
	Total	4	12	27	39
Self-Care	A Self-Feeding	1	4	10	14
	B Preparing and Serving Food Using Utensils and Containers	1	1	2	3
	C Personal Hygiene	1	2	8	10
	D Dressing and Undressing	1	1	2	3
	Total	4	8	22	30
Cognitive	A Sensory Stimuli	1	1	3	4
	B Object Permanence	1	2	5	7
	C Imitation	1	1	2	3
	D Causality	1	2	3	5
	E Problem Solving	1	1	4	5
	F Object Differentiation	1	2	4	6
	G Pre-Academic Skills	1	2	4	6
	Total	7	11	25	36
Social	A Complies with Social Conventions	1	2	4	6
	B Interaction	1	3	6	9
	Total	2	5	10	15
Communication	A Communicative Transactions	1	4	13	17
	B Comprehends single Words and Sentences	1	2	6	8
	C Production of Signals, Words and Sentences	1	6	25	31
	Total	3	12	44	56
	GRAND TOTAL	23	58	148	206

Domain: Fine Motor

Strand: Eye-Hand Coordination

LRG1.0 The child assembles a simple interlocking puzzle.

CRITERIA

The child fits puzzle pieces together in at least two different interlocking puzzles. The puzzles should have at least three pieces that interlock.

DIRECTIONS

Materials: Simple 3 or 4 piece interlocking puzzles.

Position: Sitting or functional position for the child.

Procedure: Observation
Observe the child playing with a puzzle. Notice whether the child correctly fits the puzzle pieces together. Observe the child playing with two different puzzles.

Direct Test
Present the child with puzzle and puzzle pieces. Encourage the child to fit the puzzle together and record whether the child correctly fits the puzzle pieces together. Test three times with at least two different puzzles.

T01.1 The child fits a variety of different shapes into correct openings.

CRITERIA

On two occasions, the child fits at least three different shapes (e.g., cross, triangle, circle) into the correct corresponding openings.

DIRECTIONS

Materials: Any piece of equipment that has a variety of shapes and corresponding openings (e.g., shape box, shape board).

Position: Any position that allows the child to manipulate the materials.

Procedure: Observation

Observe the child playing with the materials. Notice whether the child correctly fits at least three different shapes into the correct openings. Observe the child on two different occasions.

Direct Test

Present the child with the materials. Encourage the child to fit three different shapes into openings. (The adult might have to hand the child three different shapes.) Test three times.

TO1.2 The child fits simple shapes in correct place.

CRITERIA

On two occasions the child fits three different simple shapes (e.g., circle, square, triangle) in correct place in a formboard or simple shape puzzle.

DIRECTIONS

Materials: Formboards or simple puzzles (that do not interlock) with at least three different pieces. Formboard or puzzle pieces that have attached handles or knobs may be used.

Position: Any position that allows the child to manipulate the materials.

Procedure: Observation

Observe the child playing with the materials. Notice whether the child correctly fits at least three different shapes in correct place. Observe the child on two different occasions.

Direct Test

Present the child with the materials. Encourage the child to fit three different shapes in correct place. (The adult might have to hand the child three different shapes.) Test three times.

PAGE 1 of 2

Name _____ _____

I.D. Number _____ D.O.B _____

Examiner _____ _____

★ SCORING KEY

2 = pass consistently 1 = inconsistent performance

0 = fail consistently

COMMUNICATION

ON QUALIFYING NOTES

A = Assistance Provided B = Behavior Interfered

R = Reported Assessment P = Programming Steps

N = Not Applicable CH = Criterion Hearing Impaired Adaptation

CV = Criterion Visually Impaired Adaptation CM = Criterion Motor Impaired Adaptation

DH = Direction Hearing Impaired Adaptation DV = Direction Visually Impaired Adaptation

DM = Direction Motor Impaired Adaptation

TESTING DATE _____ _____ _____

QUARTER _____ _____ _____

	IEP	★	ON	★	ON	★	ON
A. SOCIAL COMMUNICATIVE TRANSACTIONS							
1.0 ATTENDS TO SPEECH	O	□	⊔	□	⊔	□	⊔
1.1 Att. to obj./spkr.	O	□	⊔	□	⊔	□	⊔
1.2 Att. to noise obj	O	□	⊔	□	⊔	□	⊔
1.3 Att. to loc. stim.	O	□	⊔	□	⊔	□	⊔
2.0 FOLLOWS MUTUAL TOPIC	O	□	⊔	□	⊔	□	⊔
2.1 Att. to obj	O	□	⊔	□	⊔	□	⊔
2.2 Foll. point	O	□	⊔	□	⊔	□	⊔
2.3 Att. to obj. w/in reach	O	□	⊔	□	⊔	□	⊔
3.0 ENGAGES P/ RECIPROCAL VOCAL EXC	O	□	⊔	□	⊔	□	⊔
3.1 Eng. recip. motor/ver. exc	O	□	⊔	□	⊔	□	⊔
3.2 Eng. recip. motor act./games	O	□	⊔	□	⊔	□	⊔
3.3 Im. recip. resp. to loc. stim.	O	□	⊔	□	⊔	□	⊔
4.0 USES PRELING. SOCIAL COMM. SIG	O	□	⊔	□	⊔	□	⊔
4.1 Gains att. & pts. to obj/event	O	□	⊔	□	⊔	□	⊔
4.2 Pts. to obj. & vocal	O	□	⊔	□	⊔	□	⊔
4.3 Looks person, obj. & vocal	O	□	⊔	□	⊔	□	⊔
4.4 Resp. comm. sig. to question	O	□	⊔	□	⊔	□	⊔
B. COMPREHENSION OF WORDS AND SENTENCES	O	□	⊔	□	⊔	□	⊔
1.0 LOC. NAMED COMM. PIC. W/O CUES	O	□	⊔	□	⊔	□	⊔
1.1 Locates obj/people events w/o cues	O	□	⊔	□	⊔	□	⊔
1.2 Locates pict. in fam. cont.	O	□	⊔	□	⊔	□	⊔
1.3 Locates obj/people events + cues	O	□	⊔	□	⊔	□	⊔
2.0 FOLLOWS 2-STEP DIR. W/O CUES							
2.1 Follows 2-step dir. w/cues	O	□	⊔	□	⊔	□	⊔
2.2 Follows 1-step dir. w/o cues	O	□	⊔	□	⊔	□	⊔
2.3 Follows 1-step dir. w/cues	O	□	⊔	□	⊔	□	⊔
C. PRODUCTION SIGNALS, WORDS, SENTENCES	O	□	⊔	□	⊔	□	⊔
1.0 USES CONSIS. WD. APPROX. FOR SOC. COMM. FUNC.	O	□	⊔	□	⊔	□	⊔
1.1 Uses C-V-C	O	□	⊔	□	⊔	□	⊔
1.2 Uses C-V jargon	O	□	⊔	□	⊔	□	⊔
1.3 Uses vocal	O	□	⊔	□	⊔	□	⊔
2.0 USES 60 WORDS	O	□	⊔	□	⊔	□	⊔
2.1 Uses 5 desc. wds	O	□	⊔	□	⊔	□	⊔
2.2 Uses 10 action wds	O	□	⊔	□	⊔	□	⊔
2.3 Uses 5 rel wds	O	□	⊔	□	⊔	□	⊔
2.4 Uses 2 pronouns	O	□	⊔	□	⊔	□	⊔
2.5 Uses 30 obj/event lab	O	□	⊔	□	⊔	□	⊔
2.6 Uses 5 person lab	O	□	⊔	□	⊔	□	⊔

RESULTS PAGE 1

Total Correct _____ _____ _____

Total Percent Correct _____ _____ _____

Name _____

I.D. Number _____ D.O.B _____

Examiner _____

COMMUNICATION

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DV = Direction Visually Impaired Adaptation

TESTING DATE _____ _____ _____

QUARTER _____ _____ _____

TESTING DATE _____ _____ _____

QUARTER _____ _____ _____

	IEP	★	ON	★	ON	★	ON
3.0 USES 10 DIFFERENT 2 WD	○	□		□		□	
3.1 Uses ag/ac, ac/obj, ag/obj	○	□		□		□	
3.2 Uses succ. single wd utt	○	□		□		□	
3.3 Uses single wd. & gest	○	□		□		□	
4.0 USES DIFFERENT REL WDS W/OBJ. LABELS	○	□		□		□	
4.1 Uses 2 wds - possession	○	□		□		□	
4.2 Uses 2 wds - location	○	□		□		□	
4.3 Uses 2 wds - attribution	○	□		□		□	
4.4 Uses 2 wds - recurrence	○	□		□		□	
4.5 Uses 2 wds - nonexist	○	□		□		□	
4.6 Uses 1 wd - obj label	○	□		□		□	
5.0 USES 3 W/D UTTER	○	□		□		□	
5.1 Uses 3 wds - neg imper	○	□		□		□	
5.2 Uses 3 wds - questions	○	□		□		□	
5.3 Uses 3 wds - ac/obj/loc	○	□		□		□	
5.4 Uses 3 wds - ag ac/obj	○	□		□		□	
6.0 USES 2 INFLEC. MARKERS	○	□		□		□	
6.1 Uses possessives	○	□		□		□	
6.2 Uses plurals	○	□		□		□	
6.3 Uses pres. prog	○	□		□		□	

RESULTS PAGE 2

Total Correct _____ _____ _____

Total Percent Correct _____ _____ _____

APPENDIX B

GESELL PROTOCAL FORMS

PSYCHO-EDUCATION ASSESSMENT: Pre or Post

NAME:
ID#:
TESTING DATE:
BIRTHDATE:
AGE:
SCHOOL: CSB - Intervention Project
REFERRED BY: C.C.D.
EXAMINER:
TEST ADMINISTERED: Revised Gesell Test

TEST RESULTS SUMMARY:

CHRONOLOGICAL AGE	DEVELOPMENTAL QUOTIENTS		MATURITY AGE WEEKS/MONTHS
	_____	General Development	_____
	_____	Adaptive Behavior	_____
	_____	Gross Motor	_____
	_____	Fine Motor	_____
	_____	Language	_____
	_____	Personal-Social	_____

QUEST.NO.	CODE	H	O	4 Weeks or Less	QUEST.NO.	CODE	H	O	8 Weeks
				ADAPTIVE					ADAPTIVE
040				Dangling Ring, Rattle: regards, line of vision only (*8w)	06				D.Ring, Ra: delayed midline regard (*12w)
041				Dangling Ring, Rattle: follows to midline, not beyond (*8w)	06				D.Ring: follows past midline (*16w)
042				Rattle: retains briefly (*16w)	06				D.Ring: follows vertically
043				Bird Call, Bell-Ring: attends, reduces activity (*24w)					
044				Bird Call, Bell-Ring: facial response (*24w)					
				GROSS MOTOR					GROSS MOTOR
045				Supine: side position head predominates (*12w)	06				Supine: head mid-position seen (*12w)
046				Supine: tonic-neck-reflex position predominates (*12w)	06				Supine: symmetric postures seen (*12w)
047				Pull-to-Sit: complete head lag (*20w)	06				Sit: head bobbingly erect (*12w)
048				Sit: head sags (*8w)	06				Ventral Suspension: head compensates, not legs (*16w)
049				Sit: back rounded (*16w)	07				Prone: head to 45° recurrently (*12w)
050				Ventral Suspension: no head or leg compensation (*8w)	07				Prone: hips low, frog position (*16w)
051				Prone Placement: head rotates (*12w)					
052				Prone: barely lifts head (*8w)					
053				Prone: hips high (*8w)					
054				Prone: crawling movements (*8w)					
				FINE MOTOR					FINE MOTOR
055				Dangling Ring, Rattle: hand clenches on contact (*16w)	07				D.Ring: retains
056				Supine: hands fisted (*12w)					
				LANGUAGE					LANGUAGE
057				Expression: impassive face (*8w)	07				Expression: alert face
058				Expression: indirect regard (*8w)	07				Expression: direct regard
059				Vocalization: small, throaty noises (*8w)	07				Vocalization: "talks back"
					07				Vocalization: single vowel sounds (*28w)
					07				Vocalization: coos (*28w)
				PERSONAL-SOCIAL					PERSONAL-SOCIAL
060				Supine: stares indefinitely (*8w)	07				Supine: regards examiner recurrently (*12w)
061				Social: regards examiner, reduces activity (*8w)	07				Social: follows moving person
					OP				Social: smiles responsively
062				Feeding: 2 night feedings (*8w)	08				Feeding: 1 night feeding (*---)

H = History; O = Observation; (*) = pattern replaced by more mature one at later age

QUEST.NO.	CODE	H	O	12 Weeks
				ADAPTIVE
082				D.Ring,Ra: prompt midline regard (*16w)
083				D.Ring,Ra: glances at in hand (*16w)
084				D.Ring: circular coordination
085				Ra: follows past midline (*16w)
086				Ra: follows vertically
087				Tabletop: regards table or hands
088				H.Cubes,Cup: regards immediately
089				H.Cubes,Cup: regards prolongedly
090				H.Cubes,Cup: arms activate (*20w)
091				Yarn: follows across table
				GROSS MOTOR
092				Supine: head mid-position predominates
093				Supine: symmetric postures predominate
094				Sit: head set forward, bobs (*16w)
095				Stand: small fraction weight briefly (*20w)
096				Prone Place: head midline sustained
097				Prone: head at 45° sustainedly
098				Prone: head to platform with control
099				Prone: on forearms spontaneously
				FINE MOTOR
100				Supine: hands open or loosely closed
101				Supine: fingers, scratches (*24w)
102				D.Ring,Ra: holds actively, placed (*16w)
103				H.Cubes,Cup: contacts (*20w)
				LANGUAGE
104				Vocalization: chuckles
				PERSONAL-SOCIAL
105				Feeding: anticipates food on sight
106				Supine: regards examiner predominantly (*---)
107				Play: hand regard (*---)
108				Play: hand play, mutual fingering (*24w)

QUEST.NO.	CODE	H	O	16 Weeks
				ADAPTIVE
109				Dangling Ring, Rattle: regards immediately
110				Dangling Ring, Rattle: arms activate (*20w)
111				Dangling Ring, Rattle: achieves 180° arc
112				Dangling Ring, Rattle: regards in hand
113				Dangling Ring, Rattle: to mouth
114				D.Ring,Rattle: free hand fingers, holds
115				Cube, Bell: regards immediately
116				Cube, Bell: arms activate (*20w)
117				Cube, Bell: contacts (*20w)
118				2nd Cube: holds 1 placed, regards 2nd (*20w)
119				Yarn: follows 180° in air
120				Pellet: delayed recurrent regard (*24w)
				GROSS MOTOR
121				Supine: hands engage
122				Sit: head set forward, steady (*20w)
123				Sit: lumbar curvature only (*24w)
124				Ventral Suspension: head, legs compensate
125				Prone: head to 90° sustainedly
126				Prone: legs extended
127				Prone: 1 arm flexed, 1 extended (*20w)
128				Prone: rolls to supine
				FINE MOTOR
129				Dangling Ring, Rattle: hand curls actively
130				Rattle: retains
131				Tabletop: fingers, scratches tabletop
				LANGUAGE
132				Expressive: breathes heavily, excites (*24w)
133				Vocalization: laughs out loud
134				Vocalization: squeals
135				Vocalization: "talks" to toys or people
				PERSONAL-SOCIAL
136				Feeding: puts bottle, both hands (*36w)
137				Social: smiles, vocalizes, pull-to-sit (*24w)
138				Social: spontaneous, social smile
139				Play: sits propped 10-15 minutes
140				Play: pulls clothes over face (*24w)
141				Mirror: smiles & vocalizes

QUEST. NO.	CODE	M	O	20 Weeks
				ADAPTIVE
142				D.Ring,Ra: 2-hand approach (*28)
143				D.Ring,Ra: grasps by completing distance (*24w)
144				Ra: looks after lost rattle
145				Cube: 2-hand approach (*28w)
146				3rd Cube: holds 2 placed, regards 3rd (*28w)
147				M.Cubes: grasps 1 on contact (*24w)
148				M.Cubes: exploits 2 cubes
149				Bell: 2-hand approach & grasp (*28w)
150				Yarn: turns head after fallen yarn
				GROSS MOTOR
151				Supine: lifts legs high in extension
152				Pull-to-sit: no head lag
153				Sit: head erect, steady
154				Ventral Suspens: arms extend
155				Prone: both elbows extended
156				Stand: large fraction weight
157				Stand: shoulder tone sustained
				FINE MOTOR
158				Cube: precarious grasp (*24w)
				LANGUAGE
159				Vocalization: grunts, growls
				PERSONAL-SOCIAL
160				D.Ring,Ra: mouthes (*28w)
161				Social: discriminates strangers

QUEST. NO.	CODE	M	O	24 Weeks
				ADAPTIVE
162				Ra: 2-hand approach & grasp (*28w)
163				Ra: shakes actively
164				Ra: reaches after dropped rattle
165				Cube: 2-hand approach & grasp (*28w)
166				Cube, Bell: to mouth
167				Cubes: resecures dropped cube
168				M.Cubes: grasps 1st, grasps 2nd
169				M.Cubes: exploits 3 cubes
170				Cup & M.Cubes: retains cube, regards cup (*28w)
171				Yarn: looks for fallen yarn
				GROSS MOTOR
172				Supine: lifts head from platform
173				Supine: rolls to prone
174				Pull-to-Sit: lifts head, assists (*36w)
175				Chair: trunk erect (*36w)
176				Sit: well, leaning on hands (*28w)
177				Stand: bounces (*28w)
				FINE MOTOR
178				Cube: palmar grasp (*28w)
179				Pellet: contacts, rakes with whole hand (*28w)
180				String: contacts, rakes with whole hand (*28w)
				LANGUAGE
181				Bird Call, Bell-Ring: turns head
182				Expressive: displeasure by sound other than crying (*---)
				PERSONAL-SOCIAL
183				Feeding: takes solids well
184				Social: creates social contact
185				Social: pushes mother's hand away (*---)
186				Play: grasps feet, supine
187				Play: sits propped 30 minutes (*36w)
188				Mirror: pats mirror image

QUEST.NO.	CODE	H	O	28 Weeks	QUEST.NO.	CODE	H	O	32 Weeks
				ADAPTIVE					**ADAPTIVE**
189				Cube, Bell: 1-hand approach & grasp	214				2nd Cube: grasps 2 prolongedly
190				2nd Cube: grasps 1st, grasps 2nd	215				N.Cubes: grasps 2 prolongedly
191				2nd Cube: grasps 2 more than momentarily	216				Cubes: hits, pushes cube with cube (*56w)
192				3rd Cube: retains 2 as 3rd presented	217				Cup & N.Cubes: removes cube from cup
193				Nassed Cubes: grasps 2 more than momentarily	218				Pellet & Bottle: regards pellet if drops or thrown out
194				Cup & Nassed Cubes: retains cube, grasps cup					
195				Cube, Bell: Ring-String: transfers adeptly					
196				Cube, Bell: Ring-String: bangs					
197				Bell: retains					
198				Ring-String: secures ring by string (*40w)					
				GROSS MOTOR					**GROSS MOTOR**
199				Sit: sits erect about 1 minute	219				Sit: sits steady 10 minutes
200				Stand: stands hands held (*32w)	220				Sit: leans forward, reerects (*36w)
201				Prone: pivots (*36w)	221				Stand: holds rail, full weight (*40w)
202				Prone: assumes creeping position					
203				Prone: crawls or creep-crawls (*36w)					
				FINE MOTOR					**FINE MOTOR**
204				Cube: radial palmar grasp (*36w)	222				Pellet: inferior scissors grasp (*36w)
205				Pellet: radial raking or unsuccessful inferior scissors grasp (*32w)					
206				String: inferior scissors grasp					
				LANGUAGE					**LANGUAGE**
207				Vocalization: ah-ah-ah, oh-oh-oh, not aaah (*32w)	223				Vocalization: da-da or equivalent as sound (*36w)
208				Vocalization: mm-mm-mm, crying (*36w)	224				Comprehension: responds to no-no, tone of voice (*40w)
209				Vocalization: single consonant sounds--da, ba, ga	225				Comprehension: understands name; word not voice
210				Vocalization: imitates sounds--cough, tongue-click, razz	226				Communication: uses gesture
				PERSONAL-SOCIAL					**PERSONAL-SOCIAL**
211				Play: feet to mouth, supine	227				Feeding: feeds self cracker
212				Play: persistent for toys out of reach	228				Feeding: some milk from cup or glass
213				Play: bites & chews	229				Social: plays peek-a-boo

QUEST. NO.	CODE	H	O	36 Weeks
				ADAPTIVE
230				Cup & Cubes: hits cube against cup (*44w)
231				Pellet: index finger approach
232				Pellet & Bottle: holds bottle, grasps pellet (*52w)
				GROSS MOTOR
233				Sit: indefinitely steady
234				Sit: to prone with ease
235				Prone: creeps on hands & knees (*56w)
236				Prone: to sitting
237				Stand: pulls to feet at rail (*52w)
238				Rail: lifts, replaces foot (*52w)
				FINE MOTOR
239				Cube: radial digital grasp
240				Pellet: scissors grasp (*40w)
				LANGUAGE
241				Vocabulary: any 1 "word"
242				Vocalization: ma-ma as sound (*44w)
243				Vocalization: sings along with music
				PERSONAL-SOCIAL
244				Feeding: holds own bottle (*21m)
245				Social: imitates 2 nursery tricks

QUEST. NO.	CODE	H	O	40 Weeks
				ADAPTIVE
246				Cubes: matches 2 cubes (*56w)
247				Pellet & Bottle: points at pellet through glass (*15m)
248				Bell: grasps by handle
249				Bell: pokes at clapper
250				Bell: waves
251				Ring-String: sees connection, pulls string
				GROSS MOTOR
252				Rail: cruises, using 2 hands (*44w)
253				Rail: retrieves toy from floor (*52w)
254				Rail: lets self down with control
				FINE MOTOR
255				Pellet: grasps promptly
256				Pellet: inferior pincer grasp (*48w)
257				String: scissors grasp (*48w)
				LANGUAGE
258				Vocabulary: da-da with meaning
259				Vocabulary: any 2 "words"
260				Comprehension: performs 1 nursery trick on verbal request
261				Comprehension: responds to no-no, word
				PERSONAL-SOCIAL
262				Social: imitates 3 nursery tricks
263				Social: extends toy, no release (*44w)
264				Play: toys to side rail or platform (*52w)
265				Dress: pushes arms through if started (*30m)

APPENDIX C

PARENT RATING FORM

PARENT RATING FORM

Name: _____ ID#: _____ Date: _____

Instructions:

The following questionnaire contains questions about things your child can do and other things your child may not be doing. Answer each question by checking the space under YES, USED TO, SOMETIMES, or NOT YET.

YES: Means that your child does the activity as well as, or better, than it is stated in the question.

For example, if the question asks for three different words and your child uses five different words, check YES.

USED TO: Means that your child has shown the behavior in the past, but has outgrown it or now uses a more advanced behavior in its place.

For example, if your child uses one hand to reach and grasp, but used two hands a few months ago, answer the question about reaching with two hands by checking USED TO.

SOMETIMES: Means that your child is just starting to do the activity, does not use the behavior very often, or does not do it exactly as the question asks.

For example, if your child has followed a two step direction once or twice, but usually needs help, check SOMETIMES.

NOT YET: Means that your child does not do the activity as asked in the question. If you are not sure your child can do some of the activities, try those activities with your child.

PARENT RATING FORM

Fine Motor

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOME-TIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Does your child put a small object on another small object, balancing it correctly before letting go (e.g., a block on a block)?	___	___	___	___
2. Does your child pass an object from one hand to the other hand?	___	___	___	___
3. Using the tip of the thumb and one finger without resting her/his arm or hand on the table, does your child pick up a pellet-sized object (e.g., cheerio, raisin)?	___	___	___	___
4. Does your child reach out and touch (or get) an object using both hands at once.	___	___	___	___
5. Does your child use a turning motion with both the left and right wrist while manipulating an object (e.g., turns doorknobs, wind toys, dials, twists jar lids)?	___	___	___	___
6. While holding an object in each hand (e.g., blocks, spoons), does your child bang the objects together?	___	___	___	___
7. Does your child put together at least <u>two</u> different simple three-four piece interlocking (pieces that fit together) puzzles?	___	___	___	___
8. After you draw simple shapes (e.g., circle, cross, square), does your child copy at least <u>two</u> different shapes?	___	___	___	___
9. Does your child reach across his/her body to get an object on the other side (e.g., use left arm to get a toy on the right)?	___	___	___	___
10. Using one or the other hand, does your child bring objects to his/her mouth?	___	___	___	___
	___	___	___	___

PARENT RATING FORM

Gross Motor

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOME-TIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Keeping stomach off the ground, does your child creep forward at least 2 feet by alternating arms and legs (e.g., moving one arm and opposite leg)?	___	___	___	___
2. Does your child roll over from back to stomach and stomach to back, getting both arms out from under the body?	___	___	___	___
3. Does your child move her/his arms, legs, and head separately from each other (e.g., wave arms, kick legs, turn head)?	___	___	___	___
4. Without help, does your child climb in and out of a child size chair?	___	___	___	___
5. Without help, does your child get to a sitting position on the floor from lying down, hands and knees, or standing?	___	___	___	___
6. Does your child walk unsupported with body upright, swinging arms reciprocally (e.g., swings right arm forward as left leg moves forward and swings left arm forward as right leg moves forward)?	___	___	___	___
7. While standing and without support, does your child bend at the waist (or squat) to reach an object on the floor?	___	___	___	___
8. Does your child climb up and down ladders (e.g., slide, jungle gym)?	___	___	___	___
9. Using either foot, does your child hop on one foot at least one time?	___	___	___	___
10. Does your child avoid obstacles while running (e.g., runs around a wagon)?	___	___	___	___
11. Does your child pedal and steer a tricycle forward at least five feet?	___	___	___	___
	___	___	___	___

PARENT RATING FORM

Self Care

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOME-TIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Without help, does your child use a spoon and fork when eating?	___	___	___	___
2. Without help, does your child usually drink from a cup or glass without spilling?	___	___	___	___
3. Does your child bite off and chew a piece of hard-to-bite food from a larger piece of food (e.g., apple, meat, hard cookie)?	___	___	___	___
4. Does your child move her/his tongue up and down or side to side in the mouth (e.g., move food around in the mouth, or follow a toothbrush with the tongue)?	___	___	___	___
5. Without help, does your child pour liquids from one container to another container without spilling (e.g., pours juice from a pitcher into a cup)?	___	___	___	___
6. Does your child use the toilet without help (walks to toilet, adjusts clothing, eliminates in toilet, and flushes toilet)?	___	___	___	___
7. Does your child do all of the following: without help - washes face and hands, drys face and hands, gets tissue and cleans nose with help - brushes teeth and brushes hair?	___	___	___	___
8. Without help, does your child put on and take off her/his clothes including fasteners (buttons, snaps, and zippers), clothing items, and shoes and socks?	___	___	___	___
	___	___	___	___

PARENT RATING FORM

Cognitive

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOMETIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Does your child respond to sounds (e.g., looks in direction of sounds), to objects and people (e.g., follows a mobile, looks at objects), and to touch (e.g., pulls hands away from rough things, plays with water)?	___	___	___	___
2. Does your child look for toys and/or people where she/he usually finds them (e.g., goes to toy box to look for a toy, goes to crib to get blanket)?	___	___	___	___
3. Does your child follow toys and/or people with her/his eyes until they disappear from view?	___	___	___	___
4. Does your child approximately imitate new words and motor actions (e.g., says, "gog" for dog, waves arms in circle after you do it)?	___	___	___	___
. After you wind a mechanical toy (e.g., Jack-in-the-box, wind-up radio), does your child try to work the toy like you did (e.g., tries to turn knob, push button)?	___	___	___	___
6. After you stop playing an action game (e.g., peek-a-boo, bouncing child on knee), does your child use an action that was part of the game to get you to keep playing the game?	___	___	___	___
7. Does your child try at least two different ways to solve a simple problem (e.g., tries to get something from a counter by jumping up to reach the counter, calls for or gets an adult, and/or pulls chair to counter)?	___	___	___	___
8. When playing, does your child use an imaginary toy/object (e.g., holds hand to ear and pretends to be talking into a phone, pretends to eat food from an empty bowl)?	___	___	___	___
9. Does your child play with or use toys or objects as they are supposed to be used (e.g., holds play phone to ear)?	___	___	___	___
10. When given a group of different objects, does your child put objects together that go together (e.g., spoon and bowl; comb and brush; shoes and socks)?	___	___	___	___
11. When you show your child a picture that matches one picture in a group of 3 or 4 pictures, does your child pick up or point to the one picture in the group that matches?	___	___	___	___
	___	___	___	___

PARENT RATING FORM

Communication

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOME-TIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Does your child look at you (or other adult) then point to a toy or object and then look at you again, while making sounds?	___	___	___	___
2. Does your child make 2 or more consecutive vocal exchanges with others (e.g., child says, "baba", adult says, "ball", and child says, "ba")?	___	___	___	___
3. Does your child turn away from what she/he is doing to look at something an adult is looking at or pointing at (e.g., while playing, the adult turns and looks at the window and the child turns and looks at the window)?	___	___	___	___
4. Does your child turn to look at someone who is talking (e.g., while playing, the child looks at the adult when the adult speaks)?	___	___	___	___
5. Does your child follow two-step directions that do not relate to the immediate situation (e.g., when doll is not close, the adult asks the child "to get the doll and put it on the bed")?	___	___	___	___
6. When you ask your child to show you at least 20 new pictures of common things, does your child show you (point to, look at, touch) the picture	___	___	___	___
7. When speaking in sentences, does your child end 2 or more words with 's, s, or ing in one sentence (e.g., "girls are running", "the boys have hats)?	___	___	___	___
8. Does your child use three-word sentences at least 30% of the time (e.g., "mama open door", "me roll truck")?	___	___	___	___
9. Does your child use 3 different relational words (more, there, want) with 5 or more different labels (e.g., "there kitty", "more juice", "all gone bubbles")?	___	___	___	___
10. Does your child use at least 10 different two-word sentences that include at least one of each of the following: a. a person and an action (e.g., "Mama eat") b. an action with an object (e.g., "roll ball") and c. a person and an object (e.g., "Daddy truck")	___	___	___	___
11. Does your child use at least 60 different words appropriately (e.g., says, "ball" when playing with a ball, looking at picture of a ball, looking for a ball)?	___	___	___	___

Communication, Continued	YES	USED TO	SOME-TIMES	NOT YET
12. Does your child consistently use word approximations for certain objects, people, and/or when asking for things, protesting, and answering questions (e.g., always says, "ju" for juice)?	___	___	___	___

PARENT RATING FORM

Social

	YES Performs the behavior correctly	USED TO Did perform the behavior, but doesn't anymore	SOME-TIMES Performs the behavior sometimes and other times does not	NOT YET Does not perform the behavior
1. Does your child follow simple directions if given to her/him alone and if given to a group of children (e.g., "Sara, put your toys away"; "let's all go outside")?	___	___	___	___
2. Does your child use appropriate behaviors in many different daily routines (e.g., comes to table at mealtime, undresses at bath-time, plays with toys at playtime)?	___	___	___	___
3. Does your child talk to or play with adults (starts interactions with adults and responds to interactions from adults)?	___	___	___	___
4. Does your child talk to or play with friends (starts interactions with friends and responds to interactions from friends)?	___	___	___	___
5. Does your child play with many different toys or objects?	___	___	___	___
	___	___	___	___

APPENDIX D

SELECTED PAGES FROM THE DEVELOPMENTAL
PROFILE II ADMINISTRATION MANUAL

DEVELOPMENTAL PROFILE II

I. INTRODUCTION AND OVERVIEW

The Developmental Profile II is an inventory of skills designed to assess a child's development from birth through age nine. A comprehensive assessment of a child's development typically has required expensive and time-consuming examinations by a variety of experts in the areas of motor, language, personal/self-help, social and intellectual development. The present inventory, in contrast, provides a reliable assessment of each of these five key areas in 20 to 40 minutes by an evaluator who need not be a trained developmental expert.

The inventory provides an individual profile which depicts a child's functional developmental-age level by classifying particular skills according to age norms in the five areas of development. These are briefly described below:

Physical Age This scale measures physical development by determining abilities with tasks requiring large and small muscle coordination, strength, stamina, flexibility, and sequential motor skills.

Self-Help Age This scale measures the ability to cope independently with the environment and measures the child's skills with tasks such as eating, dressing and working. This scale assesses the degree to which children are capable of responsibly caring for themselves and others.

Social Age This scale measures interpersonal relationship abilities. The child's emotional needs for people, as well as the manner in which the child relates to friends, relatives, and various adults exemplify the skills which measure functional performance in the social situation.

Academic Age This scale measures intellectual abilities by assessing, at the younger pre-school level, the development of skills prerequisite to scholastic functioning and, at older pre-school and school age levels, actual academic achievement.

Communication Age This scale measures expressive and receptive communication skills with both verbal and non-verbal language. The use and understanding of spoken, written and gesture languages are assessed by this scale.

The administration of the Developmental Profile involves determining whether the child does or does not have skills listed in the inventory. Determining what the child can do and/or does do allows comparison of those individual abilities to normative data, i.e., the specific age at which children usually master each skill. Anyone sufficiently well-acquainted with the child can provide information necessary to answer questions in the inventory.

A. Functions of the Profile

The Developmental Profile can be used to accomplish a variety of assessment and educational objectives, each of which is valid and appropriate. The instrument can be used to determine eligibility for receiving special education and/or related services; as a planning tool to develop an individualized educational program (IEP) consistent with the child's strengths and deficits; as a measure of child progress by comparing Profile scores at the beginning of the school year (pre-test) with scores achieved at the end of the school year (post-test); and as a method of evaluating an entire educational program or service by comparing the average pre-test scores of a group of children, i.e. a classroom, with the average post-test scores of the same group. Also, since the Developmental Profile provides a rapid and accurate measure of development along 5 dimensions, it can be used as a component in periodic developmental screening programs conducted by health practitioners, Child Find programs or parents themselves.

The Developmental Profile can be reliably administered solely as an interview or in combination with direct testing.

Any or all five scales may be used reliably. When all five scales are utilized, the inventory usually requires approximately 20 to 40 minutes to administer and score.

B. Goals

Four major goals guided the construction of the Developmental Profile:

Goal 1: To offer an instrument which provides a multidimensional description of children's development.

Most developmental assessment instruments provide single-value depiction of the child's development, e.g., intelligence, perceptual-motor, or language. At best, such instruments allow for some type of sub-scale analyses; but these are usually interpretable only by "experts" and they still measure and report on a limited area of the child's overall growth and functioning. The very existence of so many different tools for assessing different areas demonstrates that a child's development proceeds along more than one dimension. An instrument which measures functioning in 5 areas of growth and development provides users with a multidimensional view of the child—a view considered to be more accurate and functional than single-value depiction.

Goal 2: To provide an inventory which has no significant bias as a function of the sex, race, and social class of the children being evaluated.

There has been much justifiable concern about the applicability of the major developmental tests to various minority groups. The most well-known illustration involves discrimination against blacks perpetrated by the inappropriate use of tests primarily standardized on middle-class whites. A major goal of the Developmental Profile was to minimize any possibility that it could be misused in any manner which would discriminate against children as a function of their sex, race, or social class.

Goal 3: To provide a relatively quick, inexpensive, but accurate description of a child's development.

The justification for developing an inventory that was economical in terms of time and money is self-evident. The need for accuracy was specifically articulated to establish that the ease and scope of the instrument would not be accomplished at the expense of high degree of validity and reliability.

Goal 4: To permit the administration, scoring and interpretation of the instrument by people who do not have specific expertise in psychological testing.

There are many situations when a developmental assessment would be useful, yet it does not occur because the use of experts is too expensive, time consuming, or they simply are not available. An instrument which provides an accurate measure of a child's development in a relatively short period of time, an instrument that can be administered by professionals and para-professionals (teachers, teacher aides, physicians, nurses, social workers, medical aides as well as psychologists and psychometrists—should allow for more accurate assessments in that variety of settings where they are needed and appropriate but essentially unavailable.

The degree to which each of these goals was achieved is more precisely described in later sections. It is hoped that all users of the Developmental Profile will take the time to acquaint themselves with the standardization, construction, reliability and validity data. Only with such knowledge can this or any other assessment instrument be appropriately used.

C. Instrument Description

The Developmental Profile II consists of 186 items arranged into five scales. All scales have items arranged into age levels, the age levels proceed at 6-month intervals from birth to 3½ years and proceed thereafter by year intervals. Table I presents the descriptive name, age range, and age-range midpoint for each age interval. Note that the year intervals describe children 6 months on both sides of the year norms (e.g., 6 year level covers ages 5½ years to 6½ years).

PROFILE SHEET

Child's Name: _____

		Physical Age	Self-Help Age	Social Age	Academic Age	Communication Age
		_____	_____	_____	_____	_____
Months Advanced	+48					
	+44					
	+40					
	+36					
	+32					
	+28					
	+24					
	+20					
	+18					
	+16					
	+14					
	+12					
	+10					
	+8					
	+6					
	+4					
	+2					
Chronological Age: ____ yrs. ____ mos.						
Months Delayed	-2					
	-4					
	-6					
	-8					
	-10					
	-12					
	-14					
	-16					
	-18					
	-20					
	-24					
	-28					
	-32					
	-36					
	-40					
	-44					
	-48					
For Referral Guidelines See Manual:		Table IV	Table V	Table VI	Table VII	Table VIII

PHYSICAL DEVELOPMENTAL AGE SCALE

First ½ Year (Newborn: 0–6 months)

P 1. When the child is lying on its stomach, does the child hold its head up, *without support*, for at least one minute?

P 2. Can the child roll from its stomach to its back *and* from back to stomach without help?

P 3. Does the child have any method of getting from one place to another? Creeping (stomach touching the floor) or crawling (stomach off the floor) in any fashion (except rolling) that permits forward travel is acceptable.

Second ½ Year (Infant I: 7–12 months)

P 4. Does the child use a thumb and one or two fingers to pick up something (this is a pass), or is the object grasped with the whole hand (this method is a fail)?

P 5. Does the child go from a crawling or sitting position to a standing position? The child may use *something* for help but not someone.

P 6. Has the child stopped drooling? (This item is passed if no drooling occurs except when chewing, teething or eating.)

1 to 1½ Years (Infant II: 13–18 months)

P 7. Does the child walk up stairs (upright, not crawling) using a wall, hand rail or a person's hand for support? Putting both feet on each step rates a pass.

P 8. Does the child walk well enough, without support, to go about the house unwatched without falling or bumping into objects?

P 9. Does the child take the paper off candy bars or [illegible] wrapped object?

1½ to 2 Years (Toddler I: 19–24 months)

P 10. Does the child pitch, toss, or fling objects for a distance of at least three feet in a direction s/he wants? Just throwing things which go in *any* direction does not rate a pass.

P 11. Does the child go upstairs taking one stair with each foot? The child must alternate feet going upstairs but may still be putting two feet on each step going downstairs.

P 12. Does the child ride a 3-wheeler (tricycle or "Big Wheel") *using the pedals* for at least 10 feet and turning wide corners?

2 to 2½ Years (Toddler II: 25–30 months)

P 13. If you were to draw an up and down straight line, could the child copy it using a pencil, crayon, or paintbrush? The question is whether the child has enough eye-hand coordination to copy a line instead of just scribbling.

P 14. Does the child jump without falling, with both feet together, from any object which is at least eight inches off the floor (such as a step or box)?

P 15. Can the child move from place to place by jumping or leaping with two feet together? The child must be able to go at least 10 feet in this manner.

PHYSICAL SCALE

2½ to 3 Years (Toddler III: 31–36 months)

P 16. Does the child use a scissors with one hand to cut paper or cloth? The other hand can be used to hold the paper or cloth, or the material can be held for the child. The child must be able to use the scissors to cut rather than to merely tear.

P 17. Can the child hop forward on one foot without support for a distance of at least five feet?

P 18. Does the child usually walk upstairs and downstairs by placing only one foot on each stair? S/he may use a railing or wall but this should not be necessary for ordinary support or balance.

3 to 3½ Years (Pre-schooler I: 37–42 months)

P 19. Can the child throw a ball (any size) to an adult who is standing five feet away? The adult must be able to catch the ball without having to move.

P 20. Does the child release the latch and open an inside door? The child must be able, for instance, to twist a doorknob and push open an unlocked bathroom door.

P 21. Can the child use a scissors to cut out a printed circle the size of a silver dollar without being off more than a quarter of an inch anywhere? The child must hold and turn the paper with one hand while cutting with the other.

4 Years (Pre-schooler II: 43–54 months)

P 22. Does the child catch a ball (any size) thrown by an adult who is standing five feet away? The child must catch the ball 50% of the time.

P 23. Can the child hop forward on one foot for a distance of at least 10 feet without having to stop and start again?

P 24. Does the child jump rope with one or both feet at least twice; or can the child jump over a number of things in its path without stopping? The "things" should be at least eight inches high.

5 Years (Pre-schooler III: 55–66 months)

P 25. Can the child use a key to open and unlock a small padlock?

P 26. Can the child make a snowball or mud ball solid enough to stay together when thrown at least eight feet? Other material such as play-dough or soft clay could also be used. The ability to throw the material eight feet is also necessary to rate a pass.

P 27. Does the child play hopscotch or a similar game requiring skilled hopping? This includes being able to hop on one foot into a marked spot without falling, hop, turn around and continue the hopping.

PHYSICAL SCALE

6 Years (Primary Elementary I: 67–78 months)

P 28. Does the child roller skate, skateboard or ice skate? Skating means the child can push and glide with one foot after the other. There can be occasional falls but most of the time the child can travel at least 10 feet without falling.

P 29. Can the child cut out a four inch picture of an animal or human without being more than a quarter of an inch off anywhere?

P 30. Does the child skip rope? The child must be able to hold both ends of a jump rope and skip, hop, or jump *three times in a row* while flipping the rope over the head and under the feet.

7 Years (Primary Elementary II: 79–90 months)

P 31. Can the child pick up and carry a kitchen or dining-room chair from one room to another?

P 32. Can the child run fast enough to compete with a normal (non-handicapped) eight-year old child in a race or game of tag?

P 33. Can the child catch a tennis size ball *with one hand* when thrown gently from at least six feet away? (The child must catch it at least 80% of the time.)

8 Years (Primary Elementary III: 91–102 months)

P 34. Can the child strike and light a paper match? The child must be able to light the match within four tries. (Note: if this item is considered inappropriate, use only P 35 and P 36 for this level and assign 6 months credit for each of these items.)

P 35. Can the child use a house key to unlock and open a typical front or back door of a house?

P 36. Can the child wink either eye on request without closing the other eye?

9 Years (Upper Elementary I: 103–114 months)

P 37. Can the child whistle a recognizable tune?

P 38. Does the child compete in sports, such as baseball, soccer, volleyball, track, etc., with other children 10 to 11 years of age and demonstrate at least as much skill as most same sexed children in the same group?

P 39. Does the child have sufficient skill to ride a bicycle on a main street or thoroughfare in moderate traffic?

APPENDIX E

SCORING DECISION RULES

CEEPS SCORING DECISION RULES

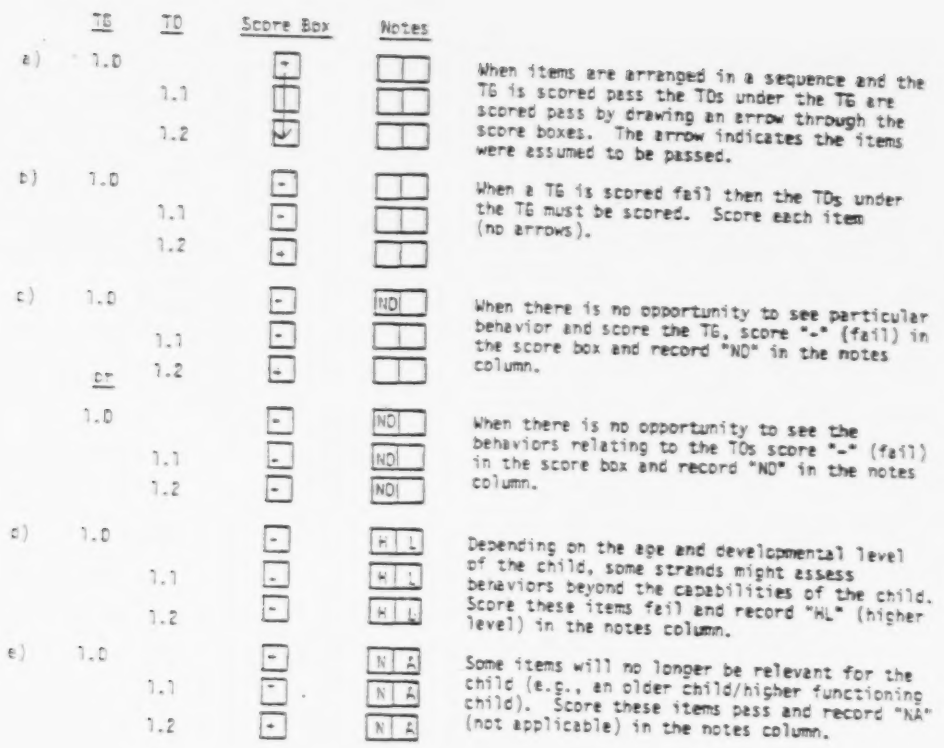
1. Scores for each item are recorded in the score boxes on the data recording forms. Codes (defined later) that explain certain scores are recorded in the "notes" column to the right of the data recording boxes. Only one score should be recorded for each item.

2. Items will be scored either: pass (+) or fail (-). An item is scored pass if a child performs a behavior correctly and independently. An item is scored fail if a child does not perform a behavior or requires complete physical assistance to perform a behavior.

3. The criterion for acceptable performance (pass score) is different for different domains. Refer to the Administration Manual for specific criteria for each domain.

4. If there is no opportunity to see a particular behavior score the particular item "-" (fail) in the data score box and record "NO" (no opportunity) in the notes column. However do not score "NO" for those items beyond the child's capability or developmental level. These items are scored "-" (fail) and "HL" (higher level) and are recorded in the notes column.

5. Each domain is divided into several strands that represent groups of related behaviors. Within each strand items are arranged into Long-Range Goals (LRG) and Training Objectives (TO). Some strands and items within strands are developmentally sequenced, others are not. Following are guidelines pertaining to scoring sequenced items and other scoring situations.


TG
TO
Score Box
Notes
a)
1.0
1.1
1.2
When items are arranged in a sequence and the TG is scored pass the TOs under the TG are scored pass by drawing an arrow through the score boxes. The arrow indicates the items were assumed to be passed.
b)
1.0
1.1
1.2
When a TG is scored fail then the TOs under the TG must be scored. Score each item (no arrows).
c)
1.0
1.1
or
1.2
ND
When there is no opportunity to see particular behavior and score the TG, score "-" (fail) in the score box and record "ND" in the notes column.
1.0
1.1
1.2
ND
ND
ND
When there is no opportunity to see the behaviors relating to the TOs score "-" (fail) in the score box and record "ND" in the notes column.
d)
1.0
1.1
1.2
H L
H L
H L
Depending on the age and developmental level of the child, some strands might assess behaviors beyond the capabilities of the child. Score these items fail and record "HL" (higher level) in the notes column.
e)
1.0
1.1
1.2
N A
N A
N A
Some items will no longer be relevant for the child (e.g., an older child/higher functioning child). Score these items pass and record "NA" (not applicable) in the notes column.

APPENDIX F

CEEPS EVALUATION FORM

The Comprehensive Early Evaluation and Programming System (CEEPS)
Evaluation Questionnaire

Name: _____

UTILITY

In general, how long does it take to administer (observation, direct test, and/or parent report) the CEEPS to one child?

In general, does the CEEPS provide enough/appropriate information to design intervention programs?

FORMAT

Suggestions for format changes:

Data Collection Forms

Administration Guide (Introduction)

Administration Manual (Target/Item Pages)

Other

	CLARITY Guidelines: Are there any confusing words, phrases, sentences? What changes should be made?			APPROPRIATENESS Guidelines: Is it clear what behaviors the items are measuring? Are the criteria appropriate? Are the directions complete? What changes should be made?		
Domain	Items	Criteria	Directions	Items	Criteria	Directions